

Accredited Standards Committee*
X3, Information Processing Systems

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Reply to: G. Milligan

To: Membership of X3T10

From: Lamers/Milligan

Subject: Minutes of X3T10 ATA Working Group - January 11, 1995

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

Gene Milligan convened the meeting at 4:00 pm. He thanked Steve Finch of Silicon Systems for hosting the meeting. He also requested that Larry Lamers take the minutes and thanked him for accepting 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 X3T10 and would be conducted under the X3 rules. Ad hoc meetings take no final actions, but prepare recommendations for approval by the X3T10 task group. The voting rules for the meeting are those of the parent committee, X3T10. 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 X3T10 BBS and the ATA Reflector and will be included in the next X3T10 committee mailing.

2. Attendance and Membership, Introductions

Attendance at working group meetings does not count toward minimum attendance requirements for X3T10 membership. Working group meetings are open to any person or company to attend and to express their opinion on the subjects being discussed.

The following people attended the meeting.

NAME	ORGANIZATION	EMAIL
Mr. Lawrence J. Lamers	Adaptec, Inc.	ljlammers@aol.com
Mr. Rich Kalish	Adaptec, Inc.	rkalish@eng.adaptec.com
Mr. Kevin James	AMD	kevin.james@amd.com
Mr. Ron Roberts	Apple Computer	rkr Roberts@aol.com
Mr. John Lohmeyer	AT&T/ NCR Microelectronics	john.lohmeyer@ftcollinsco.ncr.com
Mr. Dennis Haynes	Burr-Brown	haynes_dennis@bbrown.com
Mr. Joe Chen	Cirrus Logic Inc.	chen@cirrus.com
Mr. Nicos Syrimis	Cirrus Logic Inc.	nicos@cirrus.com
Mr. Marc Noblitt	Conner	marcnoblitt2conner.com
Mr. Charles Monia	Digital Equipment Corp.	monia@starch.enet.dec.com
Mr. Mike Chenery	Fujitsu	mchenery@fcpa.fujitsu.com
Mr. Jeff Epstein	Future Domain	jeffe@fdc.mhs.compuserve.com
Mr. Kevin Calvert	Future Domain	keving@fdc.mhs.compuserve.com
Mr. J.R. Sims	Hewlett-Packard	robsims@depeche.lvld.hp.com
Mr. Paul Boulay	Hitachi Computer Products	p_boulay@hitachi.com
Mr. Dan Colegrove	IBM Corp.	colegrove@vnet.ibm.com
Mr. Duncan Penman	IIX	penman@netcom.com
Mr. Pete McLean	Maxtor Corp.	pete_mclean@maxtor.com
Mr. Mike Flora	Microsoft	mikefl@microsoft.com
Mr. Thomas Chen	National Semiconductor	tchow@rockie.nsc.com
Mr. Chris D'Iorio	NEC Technologies	cd_iorio@necotech.com
Mr. Peter Brown	Oak Technology, Inc.	brown@oaktech.com
Mr. Kevin Matsuda	Panasonic MKE	101175.176@compuserve.com
Mr. Curtis E. Stevens	Phoenix Technologies	curtis_stevens@bannet.ptltd.com
Mr. Doug Prins	Qlogic	d_prins@qlc.com
Mr. Dave Tang	Quantum	dtang@qntm.com
Mr. Jim McGrath	Quantum	jmcgrath@qntm.com
Mr. Kevin Tso	Quantum	ktso@qntm.com
Mr. Kozushigo Yoshiro	Sanyo Electric Co. LTD	
Mr. Edward Hoskins	Seagate Technology	ed_hoskins@notes.seagate.com
Mr. Gene Milligan	Seagate Technology	gene_milligan@notes.seagate.com
Mr. Ron Werbow	Seagate Technology	ron_werbow@notes.seagate.com
Mr. Stephen Finch	Silicon Systems	5723283@mcimail.com
Mr. Patrick Mercer	SyQuest Technology	74754.1370@compuserve.com
Mr. Paul D. Aloisi	Unitrode Integrated Circuits	Aloisi@uicc.com
Mr. Devon Worrell	Western Digital Corporation	worrell@dt.wdc.com
Mr. Tom Hanan	Western Digital Corporation	hanan_t@a1.wdc.com
Mr. Dennis P. Moore	Zadian Technologies, Inc	dmoore@netcom.com

3. Document Distribution

94-087r2	Security Mode
94-154r1	Check Power Mode Enhancement
95-111r0	Informational Exception Condition Reporting
95-121r0	Annex F issues
95-122r0	Proposed 22 MB/s ATA Timing
95-125r0	Dynamic Power Selection
95-126r0	Cable Error Detection
95-127r0	Additional ATA-3 topics
0948r2k	ATA-2 distributed electronically

4. Approval of Agenda

The agenda was approved as presented.

5. Review of Action Items

- 3) All participants are requested to post existing proposals for ATA-3 on the ATA reflector.
Continued.
- 4) All participants to submit ATA-3 proposals for consideration in preliminary concept form by 11/10 and final form by January 12, 1995.
Continued.
- 5) Gene Milligan to investigate the machine readable version reporting.
Completed.

6. Old Business

6.1 SFF Contributions

Tom Hanan estimated that it will take another two months of effort to provide the SFF document to the ATA working group. Editorial resource issues are being addressed.

6.2 QIC Contributions

Gene stated that this topic is here to prevent negligence in the dealing with the possible differences with ATAPI.

6.3 Review of Overlapped operation for ATAPI

Participants had nothing to discuss.

6.4 ATA Software Programming Interface (ATASPI)

Kevin Calvert of Future Domain gave a presentation on ATASPI. He stated he will provide a copyright release so that it can be included in the mailing.

The foundation of ATASPI is ASPI and has a similar API.

Kevin stated there are no patent issues.

Gene asked the group how it wished to proceed on this topic. Future Domain has offered this to the industry and is willing to work with T10 to have it become a standard.

6.5 X3T10 ATAPI Plan and Schedule

Deferred due to uncertainty as to when SFF or others would make available an ATAPI proposal.

6.6 Other ATAPI Items for WG

6.6.1 CD-R

See document 95-119r0 for details.

6.6.2 Device one only

A hotly debated topic on the reflector. The group decided to discuss this further under agenda item 8.

7. ATA-2 Items

7.1 Annex F

Steve Finch presented a review of the Annex F issues discussed on the reflector. See 95-121r0. A straw poll was taken to assess support for various alternatives of dealing with the issues.

Tom Hanan moved Jeff Epstein seconded that Annex F be removed from ATA-2 and be incorporated into ATA-3. 11:3 the motion passed.

A revision 2k document incorporating this change will be available within 24 hours.

7.2 Other ATA-2 Editing Issues

Joe Chen raised a question on a timing parameter in 2j regarding the trD signal. Joe maintains that the 0 min value does not allow sufficient time for the setup of IOR. Joe requested a 20ns min value for trD.

Steve Finch moved and Jim McGrath seconded a motion that trD be changed to 20ns min.
2:12 the motion fails.

The consensus of opinion was that this is not a problem in properly designed host silicon.

Gene Milligan asked if there were any opposed to recommending that ATA-2 be sent for letter ballot. There were no objections.

7.3 Device one only

Steve Finch reviewed how this was addressed in ATA-2.

8. ATA-3 Items

8.1 ATA-3 Command Overlap and Command Queuing Proposals

Jim McGrath presented an alternative to command overlap that splits the overlap protocol into weak and strong types. The weak type allows ATAPI devices (CD-ROM and Tape) to overlap commands with ATA-2 disk drives to achieve performance gains in the short run.

Strong overlap will require arbitration which is a contentious issue at the moment. Jeff Epstein raised the question of how legacy, weak, and strong devices will interact. Jim indicated that part of the proposal will require more work. A straw poll indicated that weak overlap should be in ATA-3; there is also significant support for including arbitration; there was less support for queuing.

Gene Milligan will request a study effort for the items not included into ATA-3.

Jeff Epstein moved and Jim McGrath seconded to move that X3T10 include a) weak command overlapping; b) strong command overlapping; and c) command queuing in the ATA-3 scope and establish high priority on a) with diminishing priority on b to c - ultimately dropping item b) or c) to ATA-4, if it delays accepting the definition beyond 2/16/94, from the ATA-3.

The motion passed 14:0.

An ad-hoc on arbitration meeting will be held on 1/26/94. The meeting will be hosted by Quantum in Milpitas.

8.2 Secure Mode

Pete McLean reported on the revised proposal based on the input from reflector and the previous meetings. Only one password will be required to match; the emergency password has been simplified; a third category has been added for write protect without password; in identify drive a revision number has been included. The number of partitions issue was too complicated and not included. There was a sentiment for one partition if a variable number of partitions cannot be included.

Steve Finch moved and Rick Kalish seconded that Secure Mode with a change to no partitions for inclusion in the initial ATA-3 draft. The motion passed unanimously.

8.3 Greater than 16.6 MB/s DMA transfer rates

Joe Chen requested a straw poll on interest in defining >16.6 MB/s and what that rate should be. Several individuals reported that customers have requested that the SCSI-2 rates be used for ATA-3 along with the new features set anticipated for ATA-3.

Jim McGrath moved and Steve Finch seconded that >16.6 MB/s transfer rates be moved to a future project and a study group authorization be requested as soon as a proposal is made. The motion carried unanimously.

Joe then distributed a proposal for 22 MB/s.

8.4 Reset pulse width

Rich Kalish moved and Pete McLean seconded that 94-053r3 be incorporated into ATA-3. The motion carried unanimously.

8.5 Power Mode

8.5.1 Check power mode additional capability

Jim McGrath moved and Pete McLean seconded that 94-154r0 be incorporated into ATA-3. The motion carried unanimously.

Tom Hanan requested a bit be added in the IDENTIFY DRIVE data to differentiate which power control modes are implemented. Steve Finch suggested that this request be dealt with during the ATA-2 letter ballot comment.

8.5.2 Dynamic Power Selection

Jim McGrath presented a proposal that would add a set features to establish current limits for devices in PC Card applications.

8.6 PFA Reporting

Dan Colegrove presented a proposal to add an informational exception condition reporting.

Steve Finch moved and Peter Brown seconded that 95-111r0 be incorporated into ATA-3. Gene Milligan stated that the proposal needs further consideration before taking such an action. Tom Hanan pointed out that there are other proposals being developed. The motion was withdrawn to allow technical review of the document and to determine if there were any additional alternatives.

Tom Hanan moved and Jim McGrath seconded a motion to provide a proposal deadline extension until the 2/15-16/94 meeting for PFA reporting proposals. The motion carried unanimously.

8.7 Error Detection

Joe Chen expressed a concern, again, regarding the reporting of errors on the last sector transferred. Steve Finch moved and Nicos Symiris seconded that Joe be allowed an extension until the 2/15-16/95 meeting to develop a proposal. The motion carried unanimously.

Steve Finch moved and Peter Brown seconded that parity and CRC error detection not be included in ATA-3. The motion carried 9:1.

8.8 Additional DMA Commands

Steve Finch moved and Jim McGrath seconded that a DMA version of the IDENTIFY DRIVE command be incorporated into ATA-3. The motion carried unanimously.

8.9 Version Indication

Gene Milligan stated that he had developed a proposal for version indication. The proposal uses word 71 to indicate whether or not a version level is specified and if so, which ATA standard. Additional words provide which revision or range of revisions are supported. He noted that he had received suggested variations of the definition from Hale Landis. Curtis Stevens suggested that for the BIOS and OS, ASCII definitions should not be used. Steve Finch moved and Jim McGrath seconded that Gene be allowed an extension until the 2/15-16/95 meeting to develop a proposal. The motion carried unanimously.

8.10 Device one only

Gene Milligan reviewed the proposals Hale Landis had made regarding this issue. He also noted the objections that Tony Apione and Russ Berkoff had voiced over the reflector. Curtis Stevens reviewed the reasons the BIOS needs to support device one only instances. Jeff Epstein moved and Ron Roberts seconded that device one only support be incorporated into ATA-3. The motion carried 8:2

8.11 ATA-3 Editing

Pete McLean announced that he had been appointed as the Technical Editor of ATA-3. He plans to use the current ATA-2 document to prepare a working draft.

9. New Business

9.1 IDENTIFY DRIVE data in support of BIOS or device driver information requirements

Duncan Penman presented a proposal requesting an extension of IDENTIFY DRIVE data to address some software/BIOS issues. Tom Hanan moved and Jim McGrath seconded that an extension until the February meeting be granted for this topic. The motion carried unanimously.

9.2 ATA Systems Issues

Duncan Penman discussed the problem of dealing with ATA systems issues. He requested input on how and under what organization this topic should be dealt with.

10. Call for Patents

Gene Milligan requested that anyone aware of any patents required for the proposals be disclosed early in accordance with the ANSI patent policy.

The Secure Mode proposal involves patents pointed out by Pete McLean and he stated that a letter has been submitted by Maxtor. He also mentioned an IBM patent and Dan Colgrove noted that document 94-125 contains the letter regarding the ANSI patent policy..

11. Action Items

- 1) All participants to submit ATA-3 proposals, for which an extension has been granted, in fully defined form at the 2/15/94 meeting and to post the proposal on the ATA reflector before the meeting for prior review.
- 2) Gene Milligan will request a study effort for the items not included into ATA-3.
- 3) Gene Milligan to get document for device one support.

12. Meeting Schedule

January 26, 1995 to address arbitration issues in Milpitas, CA starting at 9:30 am : Hosted by Quantum.

February 15-16, 1995 in Milpitas, CA starting at 9:30 am 2/15 and 9:00 am 2/16: Hosted by Quantum.

March 8-9, 1995 in Orange County hosted by Q Logic

April 12-13, 1995

Jun 21-22, 1995

13. Adjournment

The meeting adjourned at 12:56 PM on November 10, 1994.