

Accredited Standards Committee*
X3, Information Processing Systems

Doc. No. X3T10/95-162r1
Date: March 20, 1995
Project:
Ref. Doc.:
Reply to: G. Milligan

To: Membership of X3T10

From: Lamers/Milligan

Subject: Minutes of X3T10 ATA Working Group - March 8-9, 1995

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*Operating under the procedures of The American National Standards Institute.
X3 Secretariat, Computer and Business Equipment Manufacturers Association (CBEMA)
1250 Eye Street NW, Suite 200, Washington, DC 20005-3922
Telephone: 202-737-8888 (Press 1 twice) FAX: 202-638-4922 or 202-628-2829

14. ADJOURNMENT

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1. Opening Remarks

Gene Milligan convened the meeting at 4:00 pm. He thanked Skip Jones of Qlogic 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.

Gene announced that the ATAPI project had been approved as project 1120D.

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	Company	Telephone	Email
Mr. Lawrence J. Lamers	Adaptec, Inc.	(408) 957-7817	ljlammers@aol.com
Mr. Richard Kalish	Adaptec, Inc.	(408) 957-7169	rkalish@aol.com
Mr. Kevin James	Advanced Micro Devices		
Mr. Ron Roberts	Apple Computer	(916) 677-5714	rkr Roberts@aol.com
Mr. Joe Chen	Cirrus Logic Inc.	(510) 226-2101	chen@cirrus.com
Mr. Marc Noblitt	Conner Peripherals	(303) 682-8408	marc.noblett@conner.com
Mr. Jeff Reid	Conner Peripherals - Tape	(714) 966-4759	
Mr. I. Dal Allan	ENDL	(408) 867-6630	2501752@mcimail.com
Mr. Robert Liu	Fujitsu Computer Products, Am	(408) 894-3790	74503.1610@compuserve.com
Mr. Jeff Epstein	Future Domain Corp.	(714) 253-0546	jeffe@fdc.mhs.compuserve.com
Mr. Kevin Calvert	Future Domain Corp.	(714) 253-0522	
Mr. Richard Harcourt	GSI	714-261-7949	
Mr. Tom Wood	GSI	714-261-7949	
Mr. Tony Goodfellow	GSI	714-261-7949	
Mr. J. R. Sims	Hewlett Packard Co.	(303) 635-6774	robsims@depeche.lvld.hp.com
Mr. Pat Edsall	Hewlett Packard Co.	(208) 396-4804	edsall@hpdmd48.boi.hp.com
Mr. Paul Boulay	Hitachi Computer Products	(408) 986-9770 x205	p_boulay@hitachi.com
Mr. Anthony E. Pione	IBM Corp.	407-443-1504	apione@vnet.ibm.com
Mr. Dan Colegrove	IBM Corp.	(507) 286-5558	colegrove@vnet.ibm.com
Dr. Gerald Marazas	IBM PC Company	(407) 982-4423	marazas@bcrvmpc2.vnet.ibm.com
Mr. Duncan Penman	IIX Consulting	(408) 730-2565	penman@netcom.com
Mr. LeRoy Leach	Maxtor Corp.	(303) 678-2828	leroy_leach@maxtor.com
Mr. Pete McLean	Maxtor Corp.	(303) 678-2149	pete_mclean@maxtor.com
Mr. Steve Timm	Microsoft Corp.	(206) 936-4784	stevetim@microsoft.com
Mr. Michael Aarans	Mitsumi	714-263-6414	m_aarons@cerf.net
Mr. Peter Brown	Oak Technology, Inc.	(408) 737-0888	brown@oaktech.com
Mr. Charles I. Yang	Panasonic Industrial Co.	(408) 262-2200	
Mr. Stephen F. Heil	Panasonic Technologies, Inc	(609) 987-3948	sfh@research.panasonic.com
Mr. Bill McFerrin	Philips KMG	719-593-4564	bill_mc@lms.com
Mr. Curtis E. Stevens	Phoenix Technologies	(714) 440-8330	curtis_stevens@bannet.ptltd.com
Mr. Doug Prins	QLogic Corp.	(714) 668-5040	d_prins@qlc.com
Mr. James McGrath	Quantum Corp.	(408) 894-4504	JMCGRATH@QNTM.COM
Mr. Hank Davenport	Samsung Electronics	408-434-5427	72102.1773@compuserve.com
Mr. Gene Milligan	Seagate Technology	(405) 324-3070	Gene_Milligan@notes.seagate.com
Mr. John Masiewicz	Seagate Technology	(408) 439-2152	
Mr. Ron Werbow	Seagate Technology	(805) 582-3815	ron_werbow@notes.seagate.com
Mr. Stephen G. Finch	Silicon Systems, Inc.	(714) 573-6808	5723283@mcimail.com
Mr. Robert N. Snively	Sun Microsystems Computer Co	(415) 786-6694	bob.snively@eng.sun.com
Mr. Stan Huyge	Symbios Logic, Inc	719-573-3239	stan.huyge@ftcollinsco.ncr.com
Mr. Patrick Mercer	SyQuest Technology Corp.	(510) 226-4000	patrick.mercer@syquest.com
Mr. Yas Hashimoto	Toshiba America Info. Sys.	(408) 451-6960	
Mr. Carl Bonke	Western Digital Corp.	714-932-7622	bonke@dt.wdc.com
Mr. Charles R. Patton	Western Digital Corp.	714-932-7476	patton_c@a1.wdc.com
Mr. Curtiss Krueger	Western Digital Corp.		krueger_c@a1.wdc.com
Mr. Devon Worrell	Western Digital Corp.	(714) 932-7042	worrell@dt.wdc.com
Mr. Jonathan Hanmann	Western Digital Corp.	714-932-5189	hanmann_j@a1.wdc.com
Mr. Mark Vallis	Western Digital Corp.	714-932-7457	vallis_m@a1.wdc.com
Mr. Tom Hanan	Western Digital Corp.	(714) 932-7472	hanan_t@a1.wdc.com

3. Document Distribution

SFF-8020 ATA Packet Interface for CD-ROMs

4. Approval of Agenda

The agenda was approved as presented.

5. Review of Action Items

- 6) Devin Worrell to rename the A2 command to avoid the confusion with the DEV bit by 2/15/95. Completed.
- 7) Jeff Rabbe to check to see if Intel will release for open control the definitions presently published in SFF 8038 by 2/15/95. Carried over.
- 8) Devin Worrell to add appropriate specificity to the interaction of command overlap and power modes by 2/15/95. Carried over.
- 9) Devin Worrell to adjust the overlap and queuing proposal according to the results of the 1/26/95 meeting and in particular to recast it in specification format suitable for detailed technical review and, if accepted, to have portions or the entire proposal integrated into the ATA Working Draft 2/15/95. Carried over.
- 10) Gene Milligan will request a study effort for the items not included into ATA-3. Completed.
- 11) Gene Milligan to get document for device one support. Completed.
- 12) Gene Milligan to conduct vote on CS0, CS issue. Carried over.
- 13) Gene Milligan to add DASP and drive ready time-out to March agenda. Completed.
- 14) Larry Lamers to find a contact within Adaptec on ASPI for chairman. Completed.

6. ATAPI Items

6.1 SFF Contributions

Tom Hanan stated that now that the ATAPI project is approved the SFF-8020 document is provided as a basis of discussion on how to proceed. SFF-8020 rev 2a as it stands contains SFF-8029 rev 1.6 plus weak overlap using the term ATAPI overlap. Several functions such as IDENTIFY DRIVE are not complete enough for implementation.

With regard to impediments for quick processing of standards, Gene commented that any time a standard is ready in the eyes of the committee, it can be forwarded.

Devon wants SFF to complete SFF-8020 and then submit to X3T10. However if it is submitted now and the work on weak overlap occurs in the ATA working group, then he wants the completed ATAPI overlap folded back into SFF-8020.

To crystallize the debate, Gene stated that weak overlap should be called single-device overlap and a statement be documented that ATA devices are not allowed to do single-device overlap but ATAPI devices may.

Pete McLean stated that he believes there are some issues in ATA-2 with ATAPI and these violations of ATA-2 protocol need to be addressed.

Devon Worrell moved and Duncan Penman seconded that single-device overlap be defined only in ATAPI and only for ATAPI devices. The motion carried 10:7. (Prior to calling the question the Chair stated that because of the two day partitioning of the meeting, he was going to conduct a vote on the same motion twice - once in the ATAPI portion and once in the ATA portion.)

A discussion on the venue for development of ATAPI took place.

Devon Worrell moved and Peter Brown seconded that the SFF -8020 Group include the ATAPI single-device overlap in SFF-8020 prior to submission as a proposal to the X3T10 ATAPI working group and that this work be completed prior to May 10, 1995 or else.

The chairman ruled the motion out of order since X3T10 could not control the impact of the motion.

6.2 QIC Contributions

Jeff Reid reported the status of the QIC document. He indicated that, he does not believe that QIC will need to submit a proposal per se to X3T10. Instead they intend to contribute to the completion of the ATAPI standard and if needed propose specific item additions, or changes to the 1120D document.

As long as this is the case, the Chair will not include this item on future agenda.

6.3 ATA Software Programming Interface (ATASPI)

No one had any business to conduct on this item. (Chairman's post script: the proponents of ATASPI now believe the host study effort will be the appropriate forum for future activity on this item. Consequently ATASPI will be dropped from the next agenda.)

6.4 ATAPI Plan and Schedule

Tom Hanan excepted an action item to propose a milestone schedule for the project.

6.5 ATAPI Problems

Tony Pione presented a list of issues that IBM has with ATAPI implementations. See 95-xxx for details. The error reporting and READ CD commands could use some work. The items are related to implementations and do not reflect defects in the specification. Tony's presentation was provided to enhance interoperability.

7. ATA-2 Items

7.1 X3T10 Letter Ballot Comments

Gene presented the letter ballot results for ATA-2. The vote was 46:1:11. Gene noted that Seagate had submitted a yes vote that was not recorded.

Steve Finch presented the comments. The first issues resulted from addressing the comments of Pete McLean.

Should ATA-2 replace ATA? Larry Lamers moved and Steve Finch seconded that ATA-2 replace and supersede ATA. The motion failed 4:8.

This will result in a change in the scope section. Also ATA should not be listed as a normative reference. Table 13 and Table 15 are identical. Delete table 15.

Specific comments from the ballot and/or reflector discussion are covered in agenda items 7.2 through 7.6.

7.2 DRDY Max Set Time [Colegrove]

Dan put in a recommendation for 2 minutes even though most folks will only wait 30 seconds. This will be considered in ATA-3.

7.3 DASP Timing Diagram

Left to ATA-3.

7.4 Status Register Bit 4 [Stevens]

Resolved in WD comments section.

7.5 WD Comments [Hanan]

WD comments:

editorial comment 3 - Tom did not accept the proposed resolution.

technical comment 1 - Change IOLmin from 12 ma to 4 ma. Charlie Patton presented a set of October simulations showing the driver/cable signal characteristics. Tom Hanan stated that an alternative design that is centered on a lower current driver that works should be allowed. With CMOS designs the dc loads are greatly reduced and only the a.c. characteristics are significant. Matching the source to the characteristic impedance reduces the ringing in the cable. Curtis Stevens questioned whether such a change would affect short cables.

Jim McGrath moved and John Masiewicz seconded that the WD technical comment one be considered for ATA-3 and not incorporated into ATA-2. The motion passed 13:2.

technical comment 2 - Add note to status register regarding validity. John Masiewicz moved and Jim McGrath seconded that an agreement in principle is to add the following note to 6.2.12 warning implementors on the validity.

"Although host systems might be capable of generating read cycles shorter than the 400ns specified for status update following the last command or data cycle. Host implementations should wait at least 400ns before reading status to ensure that the BSY bit is valid."

technical comment 3 - Remove the CORR bit from the third paragraph of 6.2.12 since it is not allowed to change while BSY is zero. Jim McGrath moved and someone seconded that an agreement in principle is to add a note to 6.2.12 with the clarification.

technical comment 4 - In section 8.10.17 word 49 bit 13 does not have a description. Steve Finch noted that there is a description in the table, he will add the description in the text.

technical comment 5 - Add a note to 8.13 advising implementors to issue the INITIALIZE DEVICE PARAMETERS prior to accessing the drive. Jim McGrath moved and Rich Kalish seconded to accept the comment modified to state 'some ATA-1' devices. The motion carried 12:0.

technical comment 6 - Add a note to 8.18 regarding the accesses for ECC. Steve Finch moved and Jim McGrath seconded that the note be accepted modified to state 'ATA-1 devices' and 'use mode zero for 8-bit ECC accesses'

technical comment 7 - The completion of a seek is no longer deterministic since the DSC bit has been removed. Steve Finch moved and Curtis Stevens seconded to restore the original definition of the DSC bit as in revision 2d. The motion passed unanimously.

technical comment 8 - Add a note to clause 9 warning Unix developers that there is an issue with interrupting data transfer commands. WD retracted this comment.

technical comment 9 - Add note to 9.7 that IDX bit is vendor specific and may change following reset or some power management modes. Accepted by acclamation.

technical comment 10 - Add a note to 10.4.3 that tL is only a max when the peripheral cannot accept or provide the next data word. Jim McGrath noted that there are possible patent issues related to adopting this note. Tom Hanan stated that there is no patent nor patent applied for and WD has decided not to pursue the filing of a patent application. Steve Finch pointed out that existing silicon may break if this is allowed.

John Masiewicz moved and Rich Kalish seconded that technical comment 10 be rejected. The motion passed 10:1.

technical comment 11 - In A.5.2 item 9 differs from page 118 and they should be the same. Accepted by acclamation.

technical comment 12 & 13 - The soft reset during spin up may result in an inappropriate setting of 50h. Comment accepted.

technical comment 14, 15, 16 - Mike Vallis moved and John Masiewicz seconded that comments 14, 15, 16 be accepted but modified to reflect ATA-1 devices.

technical comment 17 - Remove annex D. Retracted.

7.6 Cirrus Logic Comments [Chen]

See 95-163. Editorial comments a and b were accepted.

technical comment a - fixed with an editorial clarification.

technical comment b - comment rejected based on prior recommendations of the working group. John Masiewicz moved and Jim McGrath seconded that this comment be rejected for now and all time. The motion passed 9:1.

technical comment c - Steve Finch moved and Jim McGrath seconded that this comment be rejected. The motion passed 9:1. This issue will be resurfaced in ATA-3.

7.7 ATA-2 Letter Ballot Recommendation

Pete McLean moved and Rich Kalish seconded that the working group recommend to X3T10 to accept the working group comment resolutions and forward revision 3 (2k + comment resolution) to X3 for further processing. The motion passed 12:1.

8. ATA-3 Items

8.1 ATA-3 Command Overlap and Command Queuing Proposals

Devon Worrell moved and Duncan Penman seconded that single-device overlap be defined only in ATAPI and only for ATAPI devices. The motion failed 4:4. (Note: in the ATAPI portion of the meeting the motion passed so in effect the ATA vote was a null event.)

8.2 PFA Reporting

This item was not discussed since the ATA-2 ballot issues consumed all the time available prior to the start of the X3T10 plenary. This item by necessity, was deferred until 12-13 April.

8.3 Version Indication [Milligan]

This item was not discussed since the ATA-2 ballot issues consumed all the time available prior to the start of the X3T10 plenary. This item by necessity, was deferred until 12-13 April.

8.4 Dynamic Power Selection [McGrath]

This item was not discussed since the ATA-2 ballot issues consumed all the time available prior to the start of the X3T10 plenary. This item by necessity, was deferred until 12-13 April.

8.5 Working Draft Status [McLean]

This item was not discussed since the ATA-2 ballot issues consumed all the time available prior to the start of the X3T10 plenary. This item by necessity, was deferred until 12-13 April.

8.6 Electrical Issues with 2 port implementations [McGrath]

Jim distributed a preliminary document on this problem and requested input from the group. The plan is to finalize this within the next two weeks.

9. Beyond ATA-3

This item was not discussed since the ATA-2 ballot issues consumed all the time available prior to the start of the X3T10 plenary. This item by necessity, was deferred until 12-13 April.

9.1 GT 16.6 MB [Chen]

This item was not discussed since the ATA-2 ballot issues consumed all the time available prior to the start of the X3T10 plenary. This item by necessity, was deferred until 12-13 April.

9.2 28 bits [Stevens]

This item was not discussed since the ATA-2 ballot issues consumed all the time available prior to the start of the X3T10 plenary. This item by necessity, was deferred until 12-13 April.

9.3 Strong Command Overlap and Command Queuing

This item was not discussed since the ATA-2 ballot issues consumed all the time available prior to the start of the X3T10 plenary. This item by necessity, was deferred until 12-13 April.

9.4 IDENTIFY DRIVE data in support of host requirements [Penman]

This item was not discussed since the ATA-2 ballot issues consumed all the time available prior to the start of the X3T10 plenary. This item by necessity, was deferred until 12-13 April.

10. New Business

This item was not discussed since the ATA-2 ballot issues consumed all the time available prior to the start of the X3T10 plenary. This item by necessity, was deferred until 12-13 April.

10.1 Multiple Connector ATA Implementations

See 8.5.

10.2 Enhanced Disk Drive Specification [Stevens]

This item was not discussed since the ATA-2 ballot issues consumed all the time available prior to the start of the X3T10 plenary. This item by necessity, was deferred until 12-13 April.

10.3 ATA Lite

This item was not discussed since the ATA-2 ballot issues consumed all the time available prior to the start of the X3T10 plenary. This item by necessity, was deferred until 12-13 April.

10.4 CS0, CS1 [Masiewicz]

This item was not discussed since the ATA-2 ballot issues consumed all the time available prior to the start of the X3T10 plenary. This item by necessity, was deferred until 12-13 April.

10.5 Set Multiple Elimination [Landis]

This item was not discussed since the ATA-2 ballot issues consumed all the time available prior to the start of the X3T10 plenary. This item by necessity, was deferred until 12-13 April.

11. 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.

There were no new patent issues identified.

12. Action Items

- 7) Jeff Rabbe to check to see if Intel will release for open control the definitions presently published in SFF 8038 by 2/15/95. Carried over.
- 8) Devin Worrell to add appropriate specificity to the interaction of command overlap and power modes by 2/15/95. Carried over.
- 9) Devin Worrell to adjust the overlap and queuing proposal according to the results of the 1/26/95 meeting and in particular to recast it in specification format suitable for detailed technical review and, if accepted, to have portions or the entire proposal integrated into the ATA Working Draft 2/15/95. Carried over.
- 12) Gene Milligan to conduct vote on CS0, CS issue. Carried over.
- 15) Tom Hanan to develop a project schedule for ATAPI.

13. Meeting Schedule

April 12-14, 1995 at the Raintree Hotel in Longmont, CO hosted by Maxtor.

May 10-11, 1995 at the Sheraton Hotel (717-561-2800), in Harrisburg, PA, hosted by AMP, Inc.

June 21-23, 1995 at the Crown Sterling Suites in Milpitas, CA hosted by Quantum.

Probably July 12-13 in Colorado Springs, CO hosted by Symbios Logic.

August 23-25, 1995 at the Crown Sterling Suites in Milpitas, CA hosted by Quantum.

Probably September 13-14 in Manchester, NH hosted by Digital.

October 18-20, 1995 at the Crown Sterling Suites in Milpitas, CA hosted by Quantum.

Probably November 8-9 in Palm Springs hosted by Western Digital.

December, 1995 - no meeting.

14. Adjournment

The meeting adjourned at 1:00 pm on March 9, 1995.