

Minutes of the X3T10 ATA Working Group Meeting
Held June 1, 1994, in Milpitas, CA, at Adaptec.

Chaired by: Steve Finch, Silicon Systems.
Hosted by: Richard Kalish, Adaptec.
Minutes recorded by: Robbie Shergill, National Semi;
and Larry Lamers, Adaptec.

1. Steve Finch opened the meeting at 9:30AM by thanking the host, stating the purpose of the meeting and some pertinent ANSI mechanisms. He asked each attendee to introduce themselves and also sign the attendance list.

2. Attendance List

NAME	COMPANY
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Larry Lamers	Adaptec
Ricahrd Kalish	Adaptec
Joseph Chen	Cirrus Logic
Dan Colegrove	IBM
Ray Heineman	Maxtor
Tom Newman	Mission Peak Designs
Robbie Shergill	National Semiconductor
Robert Griffith	National Semiconductor
Charles Yang	Panasonic
Jim McGrath	Quantum
Hank Davenport	Samsung
Hale Landis	Seagate
John Masiewicz	Seagate Technology
Steve Finch	Silicon Systems
Paul Aloisi	Unitrode
Tom Hanan	Western Digital

3. Agenda for this meeting was circulated by Steve Finch. It was accepted in the following form:

1. Opening Remarks
2. Attendance & Introductions
3. Approval of Agenda
4. Document Distribution
5. Next Meeting Schedule
6. Old Business
 - 6.1 Project Proposals - time limit 1 hour.
 - 6.2 16.6 MB/s status
 - 6.3 ATA-2 Detailed Review
7. New Business
8. Adjournment

4. Documents distributed in this meeting:

X3T10/94-102r0 Minutes of the April 27, 1994, ATA-Ext. SSWG Meeting

5. Next Meetings:

June 29 Irvine, CA
in-depth review of ATA-2;
one hour on scope of ATA-3.

July 21 Manchester, NH
in-depth review of ATA-2; motion to accept as working draft.
ATA-3: start planning meetings etc.

Tom Hanan asked that everything that needs to be added to ATA-2 draft be added before the 6/29 meeting so that the meeting is only editorial. Steve will do his best - there is question about when hard copies will be available.

6. Old Business

6.1 Project Proposals:

Tom offered to formulate responses to comments and put them on the Reflector. Steve Finch and Larry Lamers didn't think that this was necessary.

Larry took floor and asserted that the issue is too many documents. Larry wants two documents - one for Phy + protocol and one for commands. He said that discussion at Harrisburg airport had shown consensus on this. Larry would like to side-step the SAM compliance and CDB issues because they are not relevant to project proposal discussions. He felt, however, that ATA doesn't have to be compliant to SAM - if the market wants to ship SCSI-3 over ATA then people will do it.

Tom Hanan thought that it was more important to give ATA-3 a good foundation. Clarity issues can be dealt with education. ATA-3 should do a good job of laying the foundation and do things differently from before if that's what's needed.

Steve Finch did an informal poll - one person voted for 4 documents; several for 2; couple for 1; but lots of people had no strong opinion.

Steve said that he is afraid of SCSI-3 experience where, today, some documents are done while others are not. For this reason, he thinks two documents is a good compromise. This is his personal opinion, not as chair.

Larry said that two is just a start, we can go to more documents if necessary.

Tom said that WD has also asked around, including the Press. Feedback was that the compatibility model should be maintained - ie, one coherent portion that's Phy + Reg Set + ATA-2 Cmds. In this set, only the Phy level is seen as having to change. PI extension is not confusing to people - a need is seen for disk command set over PI, in fact.

John Masiewicz said that it is this type of mixup that has caused all the negative comments.

Jim McGrath said that the only reason to do multi-layer standards is to be able to do some portions at different times. Is it an asset or a liability? ATA doesn't have SCSI's size problem so the asset is really not that great. But the liability of confusing the market - specially when our customer base is less sophisticated than SCSI - is quite substantial. So, reduce the number of project proposals to even one.

At this point, Steve went around the room to obtain other comments:

Shergill - One or two documents to prevent confusion; but include better explanation of the layering needed for wide applications and manage this layering within the unified document.

Griffith - One document is much better to work with.

Hanan - OK to unify into one while working on it as long as internal structure is the way he wants it; but then wants it broken up into 1 or 3 when shipped.

McGrath - One.

Masiewicz - Unify into one now and then we can break it into more later if needed.

Newman - 1 or 2. The second one can be a section or separate that specifies the differences between ATA-3 and the original ATA.

Heineman - prefers one.

Kalish - 1 or 2.

Chen - Expressed concern that number of documents can grow from the many command sets thru PI. Tom clarified that the PI cmd-set extensions are outside the scope of ATA. Joe voted for one.

Aloisi - Don't want to fragment the effort and momentum. Should be simple to take care of the disk drive. Other things should be accomodated through extensions to it.

Davenport - One document.

Colegrove - From the standpoint of a user he wants one document.

Hale - ATA-3 should be a logical extension of ATA-2. It should address only the disk drive. ATAPI should remain a separate project.

Lamers - one or two.

Yang - one.

Conclusion - one document. Now need to resolve the scope issue. We will devote one hour to it on the 29th.

6.2 16.6 MB/s status

16.6Mb/s timing mode was approved to be included in the last meeting.

Also, SFF approved the ID Drive document to be forwarded to ATA-2. Question remains about how much of this should be informative, however.

6.3 ATA-2 Detailed Review (Rev 2C)

The group decided to review sections 1-6 today.

Clause 3.1.11 Reserved: Lengthy discussion. Hale said OK to check a reserved field for zeroes. Tom didn't agree. Jim didn't want the drive firmware to have to check reserved fields. Hale said if the recipient doesn't check for zero, then how will you define that bit in the future? Decided to defer it 'till ID Drive command is discussed in the next meeting.

Clause 3.1.13 vendor unique - use VU throughout the document and remove vendor specific.

Clause 3.1.7 LBA - remove the word "mode" and remove the max value.

Clause 3.1.3 CHS - remove the word "mode" and remove the max value.

Clause 3.2.5 byte ordering - Hale wanted it deleted; Jim wanted it kept but better defined. Tom said that the real way to fix it is to rewrite ID Drive in a interface-specific way. The actual description is incorrect also - Steve will correct it when rewriting it for ID Drive section.

Clause 4.1: Configuration

Tom raised the issue that with a given CSEL cable, swapping dev0 and dev1 will cause problems. So, don't say "order of dev0"

Larry brought up a bigger problem - first diagram in each figure is not good for one device operation. Tom agreed - but for Mode 4 only; Problem is that the first diagram is the way it is generally done. Hale pointed out that another way to do it would be to stay with diagram 1 and use only a slave drive - this also eliminates all master/slave issues. In that case, Jim suggested that the language should be just not to leave a stub hanging at the end of the cable. Along with this note, Steve will add a third diagram.

Tom Newman also wanted the switch and jumper options to be combined.

-- Lunch --

Clause 4.2.1 connector pin one location should be addressed
change wording to compatible from equivalent
add 'devices should utilize connectors that work with
these cables & connectors'
use SFF-8012 illustrations

Clause 4.2.2 - delete

Clause 4.3 - delete in absence of objection from IBM

Connector Specification - the device connector is not specified in ATA.
add sections for 3.5, 2.5 and 1.8 inch drives with signal definitions
and pin assignments.

Clause 4.6 - Wording added to explain what this clause is.
Cin reduced to 20 pf for mode 4.
add host to 'of device'.
slew rate specification does not recognize the series resistors used on
most ATA drives. Tom Hanan to post proposal on reflector.

Clause 5.2.4 new paragraph added to DASP requiring VOH and VOL to remain compliant even if LED is attached.

Clause 5.2.10 INTRQ questions raised by Joe Chen. He will post his concern to reflector.

Clause 5.2.11 Add information on mode 3 & 4 using IOCS16.

Clause 5.2.13 PDIAG is a no connect at host.

Clause 5.2.15.1 - This section is vendor unique.

Write Caching - how to handle - raised by Ray Heineman.

7. New Business:

Rick Kalish - DEC issue with 30ns rise time. Deal with on 6/29/94

8. The meeting was adjourned at 3:00 PM.