Minutes of the ATA-Extensions Special Working Group Meeting
Held April 27, 1994, in Milpitas, CA, at Crown Sterling Suites Hotel.

Chaired by: Steve Finch, Silicon Systems.
Hosted by: Joe Chen, Cirrus Logic.
Minutes recorded by: Robbie Shergill, National Semiconductor.

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	PHONE
Richard Kalish	Adaptec	408-957-7169
Larry Lamers	Adaptec	408-945-8600
Nicos Syrimis	Cirrus Logic	510-226-2153
Joseph Chen	Cirrus Logic	510-226-2101
Steve Anderson	Conner Peripherals	303-682-8320
Robert Liu	Fujitsu	408-894-3790
Dan Colegrove	IBM	507-289-0922
Ron Roberts	Maxtor	408-432-4322
Ray Heineman	Maxtor	303-678-2591
Robbie Shergill	National Semi.	408-721-7959
Charles Yang	Panasonic	408-945-5641
Jim McGrath	Quantum	408-894-4504
Farbod Falakfarsa	Quantum	408-894-4066
Hank Davenport	Samsung	408-434-5427
Hale Landis	Seagate	408-439-2443
Steve Finch	Silicon Systems	714-573-6808
Tom Hanan	Western Digital	714-832-7472

3. Agenda for this meeting was circulated by Steve Finch. It was modified and accepted as follows.

1. Opening Remarks

2. Attendance and membership, introductions

3. Approval of agenda

4. Document distribution

5. Meeting schedule

6. Old business
    6.1 16.6 MB/s
    6.2 Master/Slave handshaking
    6.3 Identify drive over 528MB

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7. New business
    7.1 Parity Proposal
    7.2 DRQ Bit
    7.3 Vendor Unique Set Feature Subcommands
    7.4 Format Sector/Track
    7.5 Drive Address register
    7.6 Interrupting commands
    7.7 Identify Drive cleanup

8. Adjournment

4. Following documents were distributed in this meeting:

94-	Error detection for ATA-3 (Lamers, Adaptec)
94-	Drive Address register (Landis, Seagate)
94-	Identify Drive cleanup (Landis, Seagate)
94-	Vendor unique Set Feature subcommands (Landis, Seagate)
94-	Interrupting commands (Landis, Seagate)
94-	Format Track (Landis, Seagate)
94-065r2	Master/slave handshaking (Landis, Seagate)
948D	Proposed working draft for ATA-2 (Finch, SSI)
94-101r0	Minutes of the 3/30/94 Meeting (Shergill, National)

5. Meeting Schedule:

Upcoming, confirmed meetings are as follows:

5/19/94:	Thursday morning in the plenary week at Harrisburg, PA.
6/1/94:	Milpitas, hosted by Adaptec
6/29/94:	Irvine, hosted by Western Digital

Steve Finch stated that he expects to have the X3T10 plenary approve ATA-2 draft in the July meeting. Question is when should the ATA-3 work begin? Hale Landis proposed and Steve Finch seconded that there should be no ad-hoc meetings in July and December. There were no objections to this. Larry Lamers suggested that October meeting should also be moved to an earlier time because of conflict with PCMCIA meetings in the last week of that month.

At this point, the meeting schedule for the rest of the year looks like the following:

July	– no meeting
Aug 31	– ad-hoc meeting
Sep 15	– plenary in Houston
Sep 28	– ad-hoc meeting
Oct 19	– ad-hoc meeting
Nov 10	– plenary in Palm Springs
Nov 30	– ad-hoc meeting
Dec	– no meeting
Jan 95	– plenary in Lake Tahoe

Tom Hanan announced that the ATA reflector is getting too many bad addresses. It is getting too much to handle and he will start sending

official notices to offending addresses. Clean up your address within 60 days or you will be purged.

Larry Lamers asked if Steve Finch will indeed chair each of the ATA-3 subgroups as well as being the overall editor. Steve is open either way - doesn't mind chairing each of the meetings because he expects them to be held in succession on the same day. Landis said that we can deal with this when we start ATA-3 work - Hanan and Steve agreed.

Joe Chen commented that four ATA-3 projects are causing confusion already - each document should be kept focused. Finch and Lamers asked him to cover this by commenting on the project proposals.

6. OLD BUSINESS:

6.1 16.6mb/s:

Steve Finch said that this appears to be a done deal. He will roll this spec into the ATA-2 draft. No one had any comments to the contrary.

6.2 Master/slave handshaking:

Hale Landis went over his proposal - he has added the timing diagarms. He knows that there are a few typo errors in there, but he has received no feedback.

Steve Anderson commented that there should be something specified for max time for DRDY to be asserted - after which the drive should be considered dead. Tom Hanan said that 30 sec. time should be applied here - that was the intention with ATA-1. Anderson said that it should be more like 2 minutes. Landis will have to check, but felt it has to be more than 30 sec. Hanan, Chen and Lamers felt that the user will not wait for 2 minutes. Hanan said that we should enquire of the host people as to what they can do. Hale will put out the question on the reflector.

Robbie Shergill asked to change the titles of the two annexes so they can be differentiated. This was agreed to. Tom Hanan and Steve Finch asked if we should include this in the ATA-2? Went around the room - everyone wanted to include it.

6.3 Identify drive for 528MB:

Because of the confusion that existed over the rev numbers, Hale had promised Dal Allen that this issue will not be discussed today. At this point, Hale's document only has a problem with the description of word 1.

Hale suggested that this document should be titled, "ID data for capacity determination". Everyone liked this name, but Jim McGrath felt that this removes the clarity of the fact that this document allows drives larger than 528MB.

Hale's intention is to complete this document under ATA and Steve intends to include it in ATA-2 document. Larry said that the SFF-8019 should be killed in that case - everyone agreed with this. Hale will call Dal and ask him to have the 8019 reference the appropriate ATA document to remove confusion.

Joe Chen asked for clarification on the relationship between ATA-2 and Enhanced IDE. Steve said that Enhanced IDE is one vendor's spec - that vendor has to comment on its relationship to ATA-2. Tom Hanan commented that Western Digital has not intention of treating Enhanced IDE as an exclusive document. He said that Western Digital has communicated to all interested companies - asking them to participate. However, no one in the room had seen or heard of such contact. Tom said that this had happened very recently.

7. NEW BUSINESS:

7.1 Parity Proposal

Question was raised whether this should even be considered for ATA-2. There was consensus that this issue belongs with the data integrity topic that has already been deferred to ATA-3.

7.2 DRQ Bit

The group was of the opinion that there is no need for specific handling of this issue.

7.3 Vendor Unique Set Features:

Tom Hanan didn't like the proposal on the basis that Vendor Unique commands should be used to do vendor unique functionality. Jim also agreed - Quantum does this type of things with a vendor unique command. Steve asked why Hale has to use Set Features instead of a vendor unique command. Hale responded that the real problem is that currently the Set Features command description doesn't say that the unspecified codes are reserved. All agreed to just do this much.

7.4 Format track/sector:

Steve Finch has alrady edited the ATA-2 document to say that Format Track works only in the CHS mode. But he said that the response to Format Track command in LBA mode is vendor unique. The group wanted it to be illegal - Steve will fix the document.

Tom Hanan was of the opinion that we shouldn't cover this - we had already decided that we don't want to work on this. Jim McGrath said that he doesn't like giving the host the abillity to do flaw management. But Dan Colegrove said that the IBM-Boca people want to use ft to do flaw management.

Hale said that he wants the command to be made optional so he doesn't have to implement it. Except for some very old software, no one uses this command. But, Tom Hanan pointed out that we had made a statement that ATA-2 will not eliminate any existing ATA commands - there is some software out there that will break if the Format Track command aborts.

After lunch, the group decided to remove most of the body of this command from the document and just leave the first sentence with a second sentence to the effect: "host systems are recommended not to utilize this command".

Dan Colegrove expressed concern about this change being too close to the time when we try to have it approved. But once it was clarified that the vote is four months away, he agreed to go along.

7.5 Drive Address register:

Hale asked if anyone knows of any useful purpose for this register. No one offered a purpose, but Robbie Shergill and Joe Chen said that a change here should not obselete any existing silicon. Shergill said that if the silicon is required by this change to not drive the bus then the existing silicon will have to change.

The group decided to not change the table with "high imped" for the Drive Address register, but to cover it in the note only with the recommendation that Hale had put together; with additional text that says that if it is implemented then it should be imlemented as ... (ATA-1 description).

7.6 Interrupting commands:

Hale Landis presented his proposal. Larry Lamers pointed out that ATAPI allows the current command to be interrupted with a new command even while BSY bit is set. This caused a long discussion. (Tom Hanan was not present during this discussion).

In the end, the group accepted Hale's recommendation with the first sentence of his last paragraph changed to "a command shall only be interrupted with a software or hardware reset". Second sentence also was changed to " the result of writing the command register while BSY=1 or DRQ=1 is unpredictable ..."

7.7 Identify Drive cleanup:

The group had no objection to making this command mandatory or on making several of the words vendor unique. Hale is going to rewrite this section for ATA-2. He promised to have this done before next plenary.

8. Meeting was adjourned at 3:00 PM

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