Minutes of the ATA-Extensions Special Working Group Meeting

Held March 30, 1994, in Milpitas, CA, at Crown Sterling Suites Hotel.

Chaired by: Steve Finch, Silicon Systems.
Hosted by: Richard Kalish, Adaptec.
Minutes recorded by: Robbie Shergill, National Semiconductor.

Following documents were distributed in this meeting:

- 94-045r2: Mode 4 16.6MB/s Timings (T. Hanan, WD)
- 94-___r0: Proposal for Secure Mode (P. McLean, Maxtor)

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 attendees' list.

2. Attendance List

NAME	COMPANY	PHONE
Al Pham	Adaptec	408-945-2560
Richard Kalish	Adaptec	408-957-7169
Larry Lamers	Adaptec	408-945-8600
John Geldman	Cirrus Logic	510-249-4953
Joe Chen	Cirrus Logic	chen@cirrus.com
Steve Anderson	Conner Peripherals	303-682-8320
Jeff Epstein	Future Domain	714-253-0546
Dan Colegrove	IBM	507-289-0922
Pete McLean	Maxtor	303-678-2149
Ron Roberts	Maxtor	408-432-4322
Tom Newman	Mission Peak Designs	510-790-0230
Robbie Shergill	National Semi.	408-721-7959
Jim McGrath	Quantum	408-894-4504
Farbod Falakfarsa	Quantum	408-894-4066
Jim "Yogi" Schaffner	Q-Logic	714-668-5365
Hank Davenport	Samsung	408-434-5427
Hale Landis	Seagate	408-439-2443
John Masiewicz	Seagate	408-439-2152
Steve Finch	Silicon Systems	714-573-6808
Tom Hanan	Western Digital	714-832-7472
Duncan Penman	Zadian	408-293-0800

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. Old Business
    5.1 16.6 MB/s
    5.2 Power Management
    5.3 Reset Width
    5.4 Master/Slave Handshaking
    5.5 Identify Drive for over 528MB
6. New Business
    6.1 Secure Mode
7. Status on Remaining Work (ATA-2 Document)
8. Time and place of next meeting
9. Adjournment

5. Old Business

5.1 16.6 MB/s:

The rev. 2 document brought to this meeting still needs to have the cycle time clarification note added. Steve Finch will correct and provide rev. 3 to Larry Lamers in time for the mailing. There were no other comments.

5.2 Power Management:

Hale said that he is getting no feedback. No one in the meeting had any technical objections.

5.3 Reset Width:

Richard Kalish suggested the following wording:

..shall not recognize signals shorter than 20nsec...

John Geldman said that Cirrus prefers 5ns. Richard said that their customers want at least 10ns. Tom Hanan prefers the rejection time to be more than 50ns due to ringing effects.

Steve Anderson expressed concern that with this requirement an ATA-2 drive will not work well with an ATA-1 drive in the area of master/slave handshaking. Larry Lamers asserted that this is a device spec, not an interface spec. So far the ATA specifies what the system should do (25us) but doesn't specify what the device should do. This proposal tries to remove this problem.

Steve Finch said that this still doesn't solve the existing problem - because two existing devices will behave differently. John Masiewicz said that this is not an industry problem, Seagate people haven't seen it in their labs. Only thing John will agree to is a statement that a device may

respond to a pulse less than 25us. Richard Kalish said that they haven't seen this as an industry problem either - just trying to fill a hole.

At this point Steve Finch asked for a vote:

Option 1: don't need a noise filter specified at all: 4
Option 2: need it and want it specified it in ATA-2: 5
Option 3: need it and want it specified it in ATA-3: 5

This eliminated first option, voted again:

Option 1: do it in ATA-2: 5
Option 2: do it in ATA-3: 8

It was decided that this issue will be covered under ATA-3.

5.4 Master/Slave Handshaking:

The meaning of "accepting a command" was discussed. Tom Newman said that the Annex A language assumes that returning an abort is also accepting a command. Steve Anderson agreed, but Hanan differed. Larry likes Hale's Method 2 because if your code is on the media you can't handle commands until drive has spun up anyway. Hanan stated that ATAPI prefers method 1 and it should be pushed in the market because it helps create systems that are the "sanest".

The group finally agreed that we should make clear that "a command issued when BUSY is set or DRDY is not set will not be accepted" and that method 1 diagram should be added. Agreed also that Annex B should be retained, same corrections made and the title changed to say that this annex specifies what the host should do.

5.5 Identify Drive for over 528MB:

Hale will fix up the document as per changes agreed to in the last SFF meeting, Hanan will help, and the edited document will be agreed to in the next meeting.

6. New Business

6.1 Secure Mode
Pete McLean (Maxtor) presented his proposal. Pete said that parts of this scheme are covered by an approved patent of Maxtor. Also, Maxtor knows that IBM has filed a patent. To the best of Pete's knowledge, Maxtor has already written the release letter to ANSI and believes that IBM has also written a similar letter.

Steve Finch wound up the discussion by commenting that by the next meeting people will have digested this material and will have useful feedback. So he suggested to for Pete to Gome back in a month and also get on the reflector in the meanwhile.

7. Status on Remaining Work (ATA-2 Document):

The group, in general, felt that the document has taken too long to stabilize. There are two choices - send out ATA-2 draft asap for review, or do it correctly and then send it out.

Larry prefers to hurry it up. John Masiewicz agreed - ATA-2 draft is the best ATA document in existence today. Other agreed with this also. Tom Hanan wanted a list of items that have changed in the ATA-2 to be added to the draft.

Robbie Shergill asked if the Seagate (Hale) documents are ready to include into ATA-2? Steve Finch said that he hasn't included these into the draft because such determination was never made by this group. Steve has been proceeding with the intention of presenting ATA-2 to the plenary in May.

Tom Hanan suggested that a list should be made of outstanding items with ATA-2. The rest of the group agreed and the following list was produced:

List of things that could be included in ata-2:
  already in:
  - mode 3/mode 1 timings
  - seagate comments on draft (electrical specs, etc.)
  - byte ordering

  done; awaiting review before inclusion:
  - 16.6MB/s

  in works:
  1 power management (Hale)
  2 master/slave handshake (Hale)
  3 ID drive for >528MB/<8GB (Hale)
  4 Format track proposal by Seagate (Hale)
  5 Secure Mode (McLean)
  6 DRQ Delay (Hanan)

List of Items items relegated to ATA-3:
  - 20MB/s
  - ATAPI
  - Split-up doc and rewrite
  - Data reliability (data CRC, etc.)
  - Reset signal filtering

Richard Kalish moved that in-works items 1-3 should be included into ATA-2 and items 4-6 should be moved to ATA-3. Pete McLean said that if this helps ATA-2 get out faster, then he doesn't mind moving Secure Mode to ATA-3; but when will ATA-2 go out?

Steve Finch said that he can't make the next mailing, but the document can definitely be done by the May plenary. John Lohmeyer clarified that this group doesn't have to vote to forward the document to plenary and ask for a letter ballot; but it would be good for this group to really agree on it.

Richard changed his motion and reduced it to just including the first three items and it was agreed to unanimously. Then items 4-6 were debated individually.

Format track: Tom Hanan stated that currently Format Track doesn't work in LBA mode. Question is does it need to be fixed because DOS Format command doesn't use Format Track. Hale Landis said that it is needed for diagnostics. Dan Colegrove said that you need it for flaw management also. Duncan and Geldman observed that it's obvious that this item will be complex. Geldman suggested to add a comment that Format Track doesn't work in LBA mode - this was agreed to.

Secure mode: McLean asked to move it to ATA-3. Agreed.

DRQ bit: Tom will post the proposal on reflector before the next sswg meeting and we'll decide next time.

8. Time and Place for the Next Meeting:

Apr 27: Milpitas, CA; hosted by Cirrus.
May 19: Harrisburg, PA; part of the X3T10 Plenary Week (Thursday)
June 1: Milpitas, CA; hosted by Adaptec.
June 29: Irvine, CA; hosted by Western Digital.

Southern California people expressed the desire to hold some meetings in their locale in future.

9. The meeting was adjourned at 2:50 PM.