Accredited Standards Committee*
X3, Information Processing Systems

Doc. No. X3T10/94-120R0
Date: May 19, 1994
Project:
Ref. Doc.:
Reply to: J. Lohmeyer

To: Membership of X3T10

From: L. Lamers

Subject: ATA-3 Project Proposals Letter Ballot Comments

ATA3-PH Letter Ballot Results: 44:6:0:9 = 59

No: Cirrus Logic, Hewlett Packard, IBM, Quantum, Milligan (Seagate), Unitrode

Did not respond: AMD, Apple, Compaq, DPT, Future Domain, Harbor Electronics, Maxtor, P.E. Logic, Samsung

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Cirrus Logic comment:

This is to explain the reason why I voted against some of the ATA-3 proposals. I approve the ATA-3 project as a whole, but do not agree this project been broken down into many projects as it stated in the project proposals. The reasons for this disagreement are list below:

1. This many project proposals for a single ATA-3 standard create confusion internally and externally. It is hard to explain to internal engineers which project is which spec and it become very difficult to trace and communicate the progress of each project. It also not easy to explain to customers about which level of spec and standard we are and will endorsing.
2. The diagram shown in the project proposal of the ATA-3 BC, ATA-3 XPT, and ATA-3 PH are integrated piece of standard. It was contained in one standard in ATA-2 and I do not see a clear reason to break it down into three projects. As in the initial ATA project discussion, my understanding was these three blocks represent the way to organize the sections of ATA-X document, rather than to break it down into projects.
3. ATA-X had a tradition of keep it simple approach and this approach has proven its effectiveness. I don not to see a confusion been created by this many projects.
4. I approve the ATAPI to be its own project in the command definition.

Please feel free to contact me if you have any question.

Hewlett Packard comment:

I intend to vote in the negative for all four ATA proposals. The reasons for voting in this way are:

1) SCSI-3 was segmented into multiple documents which have resulted in tremendous confusion in the industry. I don't think we should follow that plan.

2) ATA is simple, cheap and should stay that way. Adding packetized interfaces and SCSI commands to it will only increase the complexity and cost.
3) Breaking it into multiple documents implies a conformance to SAM (SCSI-3 Architecture Model) which is not feasible.

There is no reason to stop enhancing the protocol, but this vast overhaul of the document structure and feature set is not appropriate. Items such as ATAPI can be added to the existing protocol document if it is deemed needed. It can then be reviewed as a normal process of improving the existing protocol.

IBM comment:

AT Project Proposal Comments

IBM votes no on this proposal for the following reasons:

1) The AT interface cannot comply to SAM and therefore should not be included under the family of protocols that SAM defines.

2) Splitting up the AT standard into multiple documents is a bad idea. It is causing nothing but problems in SCSI-3. ATA-3 should be entirely contained within a single document.

Quantum comment:

This is a follow up to the conversation we had in Newport Beach concerning the current drafts of the ATA project proposal(s). I am very concerned about the relative lack of specific constraints on the scope, especially in light of our recent problems in approving a GPP standard. I am also convinced that a broad scope allows us to prolong the development of a standard by incrementally adding new stuff over time. I would rather limit the scope of the projects, and authorize either new projects of modify the scope of an exisiting project at a later time than run the risk of delaying the completion of the standard.

Some suggestions and comments:

Physical

“Provide a means to support the AT Attachment protocol on a variety of physical interfaces such as that for the newly-emerging requirements for memory cards.”

The only specific item mentioned is support for ATA on memory cards. I am not even sure this is needed - do we really want to define physical characteristics of ATA memory cards independent of those defined by PCMCIA? And what is meant by PHYSICAL anyway? Connectors? Electrical requirements?

If we just want to separate out the physical elements of the ATA-2 document, then why not say this? If we want to define physical requirements for new interconnects (e.g. PCI), then say that. I am against incorporaing PCI material into any of these SD3s, since I think there is a lot of work needed in that area which would surely keep the standards in development for a long time to come.

Transport

“Provide a means to support the AT Attachment protocol on a variety of physical interfaces such as that for the newly-emerging requirements for memory cards.”

This is the same scope as the Physical SD3. In reading this, the Physical SD3 appears to be a subset of the Transport SD3. I suggest eliminating this element of the scope - physical stuff belongs in the physical SD3 only.

“Provide a means to support a variety of device types on the AT Attachement interface”

This comes about through the strange dual use of this standard by the Block Command and Packet Interface standards. I have no idea how this operates in practice. Once again, what is transport?

Block and Packet Interface

I have the same concerns about the lack of specifics in the scope for these SD3s, but I also have 2 global issues. First, no where does it state whether Packet Interface is to be SAM compliant. I would argue for making it SAM compliant (the whole point of SAM is to allow the device command sets to be used on alternate physical interconnects without requiring software rewrites - a highly desirable goal for any market, but especially for the PC market). But at least the issue of compliance should be addressed.

Second, there is an inherent conflict between the Block and Packet interface standards regarding disk drives. It may be unavoidable to continue independent development of capabilities for disk drives in two different standards - but I am not convinced of this. I do not want to support two different efforts over time in a market which has always been intolerant of multiple solutions to a single problem. We should limit our scope (e.g. Packet is not to be used for disks, or Block is to be limited to existing functions with no more improvements) in order to make our work manageable.

I realize that many of these issues have been raised in the ATA working group (which I have not been regularly attending due to scheduling conflicts - that should be resolved with the new meeting time). But I feel they have been deferred rather than resolved. Since many of them are issues of policy direction or simple definition, we should (and in the interest of smooth operations must) resolve them now. For these reasons I would have to vote NO on the proposed letter ballot for the current revisions of all 4 SD3s.

Milligan (Seagate) comment:

Comments Accompanying ATA-3 PH No Ballot

I am in favor of the concept of moving to ATA-3 layered standards but have specific problems with the proposals as they are currently cast. Appropriate revisions to address the items outlined below would allow the vote to be changed to Yes.

The following changes should be made to the project proposal:

1) The title page and elsewhere should have the acronym corrected from (ATA3-PH) to (ATA-3 PH).
2) The Needs do not clearly address the reason for the layering. The need for layering and consequently ATA-3 PH is twofold. One is to make it easier to evolve physical interface alternatives. The second is to allow alternative transport layers. An increase in complexity is not a need and should be avoided with the ATA since the simplicity is what differentiates it from SCSI.
3) The figure incorrectly identifies the packet transport layer as a command set. I think it is desirable to keep the ATAPI accronym so I suggest using the designation ATA-3 Packet Interface Transport Protocol and deleting “command Set”.
4) The SCSI-3 Multimedia Command Set and Other SCSI-3 Command Sets should be changed to SCSI Like ... Command Set(s). Considerable additional work is required to determine if it really could be SCSI-3, which I doubt, or if it should be ATA-3 Command Sets which may be very close to the basic elements of SCSI.
5) In 2.2 © change “on” to “of”.
6) In In 2.2 (d) change “Higher transfers” to “Higher transfer rates” and “in” to “with”.
7) Since ATA-3 PH is a specific physical environment, it is not clear what “a broader range of physical environemnts” is and, if can be determined to have some meaning in terms of the scope, “on” should be changed to “with”.
8) The last paragraph in 2.2 should be moved to 4.2.
9) I question that X3T10 does have sufficient resources. The work relating to the PH has so far suffered from sufficient modeling experts willing to participate in the working group meetings. I

suggest changing the last sentence of 3.5 to "Press releases will be utilized in an attempt to augment the X3T10 resources with additional experts in the scope of the ATA-3 PH."

10) 3.7 is currently a misstatement of fact. Delete "for two days".
11) Based upon the frequency of revising the interface standard it seems incredulous to claim in 3.9 a life of over ten years. I suggest over three years.
12) Regarding 5.5, ISO/IEC JTC 1 declined to accept the ATA project. X3T10, or X3T9.2, voted to not pursue an international standard. I suggest changing 5.5 to "In view of the fact that ISO/IEC JTC 1 did not support the prior ATA project proposal, the X3T10 International representative will be requested to address the desirability of ATA projects at future JTC 1/SC 25/WG 4 meetings.

Unitrode comment:

1. The Proposed standard is to add tape drives and CD-ROMs to the ATA bus, mapping the SCSI-3 commands on to ATA. There use to be a need for a bootable bus to support all the peripherals. SCSI - Plug and Play has worked with the BIOS manufactures to include SCSI in the basic BIOS. SCSI devices already exist for these applications.
   A. SCSI can be booted directly with the new BIOS
   B. SCSI cost has been reduced and is only a minor penalty. The cost of supporting 2 busses fo each device is more than the cost advantage of ATA.
   C. Multimedia requires more than just the CD and Tape, Scanners and Cameras are being attached to SCSI, these would have to be considered far ATA.

Note: The original premise for ATA3 is being mmet by SCSI, the vendors are already complaining about supporting 3 SCSI busses, SPI, FCP, and P1394. Do we really want another standard to support these devices?

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ATA3-XPT Letter Ballot Results: 44:6:0:9 = 59

No: Cirrus Logic, Hewlett Packard, IBM, Quantum, Milligan (Seagate), Unitrode

Did not respond: AMD, Apple, Compaq, DPT, Future Domain, Harbor Electronics,

Maxtor, P.E. Logic, Samsung

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Cirrus Logic comment: (Same comment as for ATA3-PH)

Hewlett Packard comment: (Same comment as for ATA3-PH)

IBM comment: (Same comment as for ATA3-PH)

Quantum comment: (Same comment as for ATA3-PH)

Milligan (Seagate) comment:

Comments Accompanying ATA-3 XPT No Ballot

I am in favor of the concept of moving to ATA-3 layered standards but have specific problems with the proposals as they are currently cast. Appropriate revisions to address the items outlined below would allow the vote to be changed to Yes.

The following changes should be made to the project proposal:

1) The title page and elsewhere should have the acronym corrected from (ATA3-XPT) to (ATA-3 XPT).
2) The Needs do not clearly address the reason for the layering. The need for layering and consequently ATA-3 XPT is twofold. One is to make it easier to evolve physical interface alternatives. The second is to allow alternative transport layers. An increase in complexity is not a need and should be avoided with the ATA since the simplicity is what differentiates it from SCSI.
3) The figure incorrectly identifies the packet transport layer as a command set. I think it is desirable to keep the ATAPI acronym so I suggest using the designation ATA-3 Packet Interface Transport Protocol and deleting “command Set”.
4) The SCSI-3 Multimedia Command Set and Other SCSI-3 Command Sets should be changed to SCSI Like ... Command Set(s). Considerable additional work is required to determine if it really could be SCSI-3, which I doubt, or if it should be ATA-3 Command Sets which may be very close to the basic elements of SCSI.
5) The Scope does not make it clear what is covered by the Transport Protocol.

The general outline of what it is to cover should be included. A convenient way to do this probably would be to indicate that it roughly corresponds to sections ??? of the ATA standard.

6) Section 2.2 (b) is incorrect. The scope should not be to support a variety of device types, it should be to support ATA-3 Block Devices. This item seems to be confused with the ATAPI Transport Protocol.
7) Are there any viable examples of 2.2 © “broader range of applications” for ATA-3 XPT? If there are some, change “on” to “with”.
8) The last paragraph in 2.2 should be moved to 4.2.
9) I think there are special terms. Since the ATA is not being defined in accordance with the Open Systems Reference Model, I presume that Transport does not correspond to the the OSI model. Therefore I think “Transport” or “Transport Protocol” should be defined.
10) 3.7 is currently a misstatement of fact. Delete “for two days”.
11) Based upon the frequency of revising the interface standard it seems incredulous to claim in 3.9 a life of over ten years. I suggest over three years.
12) Regarding 5.5, ISO/IEC JTC 1 declined to accept the ATA project. X3T10, or X3T9.2, voted to not pursue an international standard. I suggest changing 5.5 to “In view of the fact that ISO/IEC JTC 1 did not support the prior ATA project proposal, the X3T10 International representative will be requested to address the desirability of ATA projects at future JTC 1/SC 25/WG 4 meetings.

Unitrode comment: (Same comment as for ATA3-PH)

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ATA3-PI Letter Ballot Results: 45:5:0:9 = 59

No: Hewlett Packard, IBM, Quantum, Milligan (Seagate), Unitrode

Did not respond: AMD, Apple, Compaq, DPT, Future Domain, Harbor Electronics, Maxtor, P.E. Logic, Samsung

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Hewlett Packard comment: (Same comment as for ATA3-PH)

IBM comment: (Same comment as for ATA3-PH)

Quantum comment: (Same comment as for ATA3-PH)

Milligan (Seagate) comment:

Comments Accompanying ATA-3 PI No Ballot

I am in favor of the concept of moving to ATA-3 layered standards and especially of accommodating the ATAPI to extend the ATA architecture to CDROM and low end tape but have specific problems with the proposals as they are currently cast. Appropriate revisions to address the items outlined below would allow the vote to be changed to Yes.

The following changes should be made to the project proposal:

1) The title page and elsewhere should have the acronym corrected from (ATA3-PI) to (ATA-3 PI).
2) In 2.1 change "It is expected to that the SCSI-3 command set sets can be used for these new device types." to "It is expected that the basic elements of the non-block SCSI command sets can be used for these additional device types. If this turns out to not be the case, additional ATA-3 Command Set projects would be proposed to adapt appropriate SCSI command sets.
3) The figure incorrectly identifies the packet transport layer as a command set. I think it is desirable to keep the ATAPI acronym so I suggest using the designation ATA-3 Packet Interface Transport Protocol and deleting "command Set". (It is conceivable that the diagram is misleading and that the real intention is to use the ATA-3 Transport Protocol below through the ATAPI Packet Command with the CDROM or Tape Command Set above.)
4) In this and other ATA-3 project proposals replace references such as in 2.3 to draft ATA standards with references to ATA standards. Likewise in each I think in 2.2 "will" should be used rather than "shall".
5) The SCSI-3 Multimedia Command Set and Other SCSI-3 Command Sets should be changed to SCSI Like ... Command Set(s). Considerable additional work is required to determine if it really could be SCSI-3, which I doubt, or if it should be ATA-3 Command Sets which may be very close to the basic elements of SCSI.
6) The Scope does not make it clear what is covered by the PI. The general outline of what it is to cover should be included.
7) In Section 2.2 (a) is it only the command block that is packetized?
8) In Section 2.2 (a) change "e.g. SCSI command sets" to "i.e. SCSI like command sets". However some additional work is needed because a command block is not equal to a command set.
9) In Section 2.2 (b) change "on" to "with".
10) The last paragraph in 2.2 should be moved to 4.1 and/or 4.2.
11) I think there are special terms. "Packet Interface" should be defined.
12) 3.7 is currently a misstatement of fact. Delete "for two days".
13) Based upon the frequency of revising the interface standard it seems incredulous to claim in 3.9 a life of over ten years. I suggest over three years.
14) In 5.1 add SCSI-2 and in 5.2 add SCSI-3.
15) Regarding 5.5, ISO/IEC JTC 1 declined to accept the ATA project. X3T10, or X3T9.2, voted to not pursue an international standard. I suggest changing 5.5 to "In view of the fact that ISO/IEC JTC 1 did not support the prior ATA project proposal, the X3T10 International representative will be requested to address the desirability of ATA projects at future JTC 1/SC 25/WG 4 meetings.

Unitrode comment: (Same comment as for ATA3-PH)

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ATA3-BC Letter Ballot Results: 44:6:0:9 = 59

No: Cirrus Logic, Hewlett Packard, IBM, Quantum, Milligan (Seagate), Unitrode

Did not respond: AMD, Apple, Compaq, DPT, Future Domain, Harbor Electronics, Maxtor, P.E. Logic, Samsung

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Cirrus Logic comment: (Same comment as for ATA3-PH)

Hewlett Packard comment: (Same comment as for ATA3-PH)

IBM comment: (Same comment as for ATA3-PH)

Quantum comment: (Same comment as for ATA3-PH)

Milligan (Seagate) comment:

Comments Accompanying ATA-3 BC No Ballot

I am in favor of the concept of moving to ATA-3 layered standards but have specific problems with the proposals as they are currently cast. Appropriate revisions to address the items outlined below would allow the vote to be changed to Yes.

The following changes should be made to the project proposal:

1) The title page and elsewhere should have the acronym corrected from (ATA3-BC) to (ATA-3 BC).
2) The Needs do not clearly address the reason for the layering. The need for layering and consequently ATA-3 BC is twofold. One is to make it easier to evolve physical interface alternatives. The second is to allow alternative transport layers. An increase in complexity is not a need and should be avoided with the ATA since the simplicity is what differentiates it from SCSI.
3) The figure incorrectly identifies the packet transport layer as a command set. I think it is desirable to keep the ATAPI acronym so I suggest using the designation ATA-3 Packet Interface Transport Protocol and deleting “command Set”.
4) The SCSI-3 Multimedia Command Set and Other SCSI-3 Command Sets should be changed to SCSI Like ... Command Set(s). Considerable additional work is required to determine if it really could be SCSI-3, which I doubt, or if it should be ATA-3 Command Sets which may be very close to the basic elements of SCSI.
5) Change Section 2.2 (a) to “Provide the ATA hard disk commands in a separate layered standard as a complement to the ATA-3 XPT and ATA-3 PH standards.” Note: I presume this statement includes hard disc removable media drives and excludes floppy disc drives which utilize a different standard.
6) The last paragraph in 2.2 should be moved to 4.1 or 4.2.
7) 3.7 is currently a misstatement of fact. Delete “for two days”.
8) Based upon the frequency of revising the interface standard it seems incredulous to claim in 3.9 a life of over ten years. I suggest over three years. However the command set may have a longer life than the other ATA-3 standards.
9) Regarding 5.5, ISO/IEC JTC 1 declined to accept the ATA project. X3T10, or X3T9.2, voted to not pursue an international standard. I suggest changing 5.5 to “In view of the fact that ISO/IEC JTC 1 did not support the prior ATA project proposal, the X3T10 International representative will be requested to address the desirability of ATA projects at future JTC 1/SC 25/WG 4 meetings.

Unitrode comment: (Same comment as for ATA3-PH)