

Diskboys Minutes
X3T10 Ad hoc on SBP-2 (X3T10/1155D)
X3T13 Ad hoc on 1394 to AT Attachment - Tailgate
Bothell, WA
Feb 12-13, 1997

Agenda

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Meeting Minutes

1. Opening remarks

Meeting started about 9am February 12, 1997. The chair thanked John Fuller and Microsoft for hosting the meeting. Introductions were made and the rules for X3 Ad hoc meetings were reviewed.

Attendees:

Larry Lamers	Adaptec	Wink Saville	Philips
Ron Roberts	Apple	Curtis Stevens	Phoenix
Peter Johansson	Congruent	Frank Campbell	Qlogic
Anthony Yang	Hitachi	Mark Evans	Quantum
Dan Colegrove	IBM	Mike Bryan	Seagate
David Jolley	Iomega	Steve Finch	Silicon Systems
Mike Alexenko	Maxtor	Dave Evans	Symbios
Pete McLean	Maxtor	Mike Winchell	Symbios
John Fuller	Microsoft	Bill Frank	Western Digital
Jake Berzon	NEC	Jon Hanmann	Western Digital
Randy Hines	Philips		

2. Charter

The group charter was resented as usual and the charter for the Mass Storage Device Profile was amended to include all storage device types..

3. Agenda Approval

Approved as amended (Common Native Command Profile changed to Mass Storage Device Profile).

4. Review of minutes and old action items

Minutes approved as submitted. Previous action items were reviewed.

1. Mike Bryan - new rev of profile (COMPLETE)
2. Bob Otis - find editor for C/DVD annex (COMPLETE)
3. All - review SBP2 status proposals

4. Peter Johansson & Mike Bryan - coordinate status reporting (COMPLETE)
5. Peter Johansson - new SBP2 rev with isochronous changes (COMPLETE)
6. Pete McLean - update Tailgate project proposal and submit to X3T13 (Complete)
7. Pete McLean - call removable disk companies to solicit participation (Complete)

5. Mass Storage Device Profile review

Began page by page review of the profile.

Pete asked if we should add a model section before the control and status registers to point out whether multiple initiators etc. are supported but not force anything (informative). Being considered.

Do we want to support multiple initiators? In SBP2, not included here.

Multiple LUNs is covered by SBP2, so we don't need it here.

Steve Finch moved that this document describe single initiator, asynchronous devices only. Larry Lamers seconded. Withdrawn for reconsideration with each annex.

Pete McLean suggested we don't need section 3 as written - just reference other documents (SBP2 and 1212 doc). Accepted unanimously.

Ron Roberts pointed out a discrepancy in password length being 6 bits on p9 and 2 bytes on p10. This started a discussion of what password length = 0 means. "0" could mean no password or 8 byte password like the tailgate? Discussion of 8-byte password versus 32-byte password. Result: Device always stores 32 byte password. 8-byte passwords are stored/compared with trailing zeros. The serial number in ATA drives is 20 bytes.

Mike Bryan made a motion to leave the description as is and to allow a password length up to 32 bytes but if shorter than 32 bytes, the device will pad it out to 32 bytes. Peter Johansson seconded. Friendly amendment suggested to change to 24 byte. Then an even more friendly amendment to change to 28 bytes. accepted. Motion passed 12-0-3.

v,m,e,i bits are in SBP2 but not used in this profile.

Discussion of access security section: shall vs. may. optional for read-only drives? Result - will change to may and will be shall for HDD annex.

It will be made clear that this is single initiator and some multi-initiator differences may be mentioned. Config ROM should be shown as an example in each annex. Peter and Mike will take off-line.

6.2.7 Unit Power Management- Power management registers in this section should be read-only? Peter Johansson given action item to attend 1394 TA meeting on power management and report results/return with proposal.

Annex A.- Fig 17 to be discarded.

Reset discussion - Peter Johansson captured edits for SBP2.

Flush cache discussion - issue of performance versus data integrity and command versus 'fua'. Flush Cache will be put on an Issues list.

HDD Mode Page will be submitted to MMC2.

6. SBP-2 (X3T10/1153D-R2a)

6.1 Asynchronous Technical Issues

Motion to put X3T10/97-128r1 (proposal by Peter Johansson for changes to Transport status) into SBP2 passed unanimously.

Motion to put X3T10/97-133r0 (proposal by Peter Johansson for changes to Request Aborted response status) into SBP2 passed unanimously.

Motion to put X3T10/97-134r0 (proposal by Peter Johansson for changes to unsolicited status handshake) into SBP2 with changes as discussed passed unanimously. (Peter Johansson will clarify the difference between unit attention conditions and other discardable status.)

6.2 Isochronous

Page by page review of the Isochronous sections in the new SBP-2 R02a document was led by Peter Johansson. Major discussion on the requirements for queuing of sufficient isochronous commands to ensure streaming for periods of bus resets. No clear decision on how to implement. Clear direction that isochronous drives require enough buffer depth to cover the reset periods. Exactly how to determine the actual queue depth in time is elusive.

Isochronous recording unfortunately requires the transformation of time sync information which adds to the complexity. Comments that isochronous will need to become standardized for international exchange of isochronous data. The specification details will most likely become part of 1394.a and be removed from the SBP-2 spec.

Peter explained the use of the “fmt” bit to determine the existence of time stamps. The drive needs to only be concerned with the source ID and the time stamp control bit. On playback we will have to parse data, maybe discard some data and on data that must be kept you have to keep the source ID, node address and time stamp.

Peter led a discussion on plugs. In a simplistic model, the concept of plugs is analogous to the physical plugs(RCA style phono and video jacks) which are used to connect consumer devices like VCRs and Stereo equipment. SBP-2 will leverage concept providing access to the plug control registers using commands. This will allow software that provides a graphical representation of the configuration of a given system to receive the information required. SBP-2 allows for the transformation of channels in and out of the drive.

The associations of these channels will be temporal and vary from session to session and from time to time. Steve Finch suggested that we do transformations only on the output. John Fuller commented that this would not always work, i.e. recording channel 4,5&6 and on playback the channels may change and even overlap. This is another of the issues that isochronous presents.

The group engaged in a discussion about the wisdom of defining isochronous for SBP-2. Good points made on both sides of the issue.

Pete McLean asked the group if those who were not as interested about isochronous should allow a sub-group to complete the work on isochronous. The group is polarized and indecisive. No consensus on the marketability of the resulting product. Big issue, Jon Hanmann is concerned that our approach has changed. He feels we had originally had a vision that this product could become more main stream. Now, with further understanding of the intricacies of isochronous it seems that the products will require much more complexity and more cost... many are concerned.

The meeting became less productive. Frustrations are high. We need to break and sleep on the issues and start over tomorrow.

Pete McLean suggested that we have an SBP-2 isochronous day and another day to do an editorial review and update of the SBP-2 document.

7. Tailgate document (X3T13/D97107R1)

7.1 Technical issues

The following were discussed and changes agreed to:

Reset Table - change "abort" to "Any ATA/ATAPI error" changes to table as appropriate; change "BD" for Power On and Command under "Fetch engine" to "BR". Eliminate note 2.

Access Security Status - sec 4.1.1 2nd paragraph reads "shall only be...." s/b "shall be....": change state diagram "Fig 5" to reflect Jan meeting request.

Abort Task set - 4.2.3. will cause a hang in the tailgate - changed state 2 & 3 of abort task set to read as state 2 & 3 in target reset,-- in state 1 change 1st sentence to "selected and active "

Status Block - the "r" bit changed to "d" to match SBP2.-- change tailgate status bits by removing the high order bit of the values.

Power Management - the power management clause to define two bits in CSR space for each device. One bit for host to turn on/off power to a device, the other to indicate the current state of power to the device. It will be pointed out that if one device is powered both will be so that if one is turned on both will come on, if both are turned on and only one is turned off both will stay on.

8. Review of action items

1. Peter Johansson - report results or provide proposal for power management that conforms to the decisions of the 1394 TA power management group.
2. Mike Bryan - turn new rev of Mass Storage Device Profile.
3. Peter Johansson - turn new rev of SBP-2 (X3T10/1153Dr2b).
4. Jonathan Hanmann - turn new rev of Tailgate (X3T13/D97107R2).

Issues List:

1. Flush Cache command/FUA bit.
2. Isochronous Technical discussion.

9. Call for Patents

A call for patents was made. Peter Johansson volunteered to review the SONY patents, if any.

10. Meeting Schedule

March 10-11, San Diego, CA - Qlogic

Schedule: Monday - Isochronous all day

Tuesday - SBP-2, Profile, Tailgate. Open technical issues to be addressed first, followed by editorial reviews.

April 10-11, San Jose, CA - Phoenix

May 5, Natick, MA - Digital

June 16-17, Irvine, CA - Western Digital

11. Adjournment

Meeting adjourned on Thursday 13 February at 11:30 AM