

Minutes

X3T10 SBP-2 Ad hoc
X3T13 Tailgate Ad hoc
1394 Mass Storage Device Profile
Mar 10-11, 1997

Agenda

1. Opening Remarks
2. Charter
3. Agenda
4. Review of minutes [T10/97-135r0 t13/d97111r0] and old action items
5. SBP-2 [T10/1155D] (Monday)
 - 5.1. Isochronous Review
6. Technical Open Issues (Tuesday)
 - 6.1. Flush command/FUA bit in profile
 - 6.2. Power management feedback
7. Common Native Command Profile
 - 7.1 Editorial Review
8. Tailgate Documentation [T13/D97107]
 - 8.1 ssues raised by Symbios
9. Review of action items
10. Call for Patents
11. Meeting Schedule

Attendees

Jack Hollins 2	Adaptec	Frank Campbell 0	Qlogic
Ron Roberts 3	Apple	Thinh Tran 0	Qlogic
Ben Chang 1	Cirrus Logic	Mark Evans 4	Quantum
Roger Wang 0	CMD Technology	Mike Bryan 0	Seagate
David Wooten 2	Compaq	Anthony Fung 2	SGS-Thomson
Peter Johansson 0	Congruent	Dennis Pak 0	Sony
Michael Nguyen 0	Fujitsu	Scott Smyers 0	Sony
Nedi Nadershahi 4	Hitachi	Kenneth Lee 0	SSI
Anthony Yang 4	Hitachi	Robert Snively	Sun
Dan Colegrove 4	IBM	Dave Evans 1	Symbios
Jon Newman 0	Iomega	Danny Mitchell 3	TI
Gary Brandvold 0	Maxtor	Bill Frank 0	Western Digital
Pete McLean 5	Maxtor	Jonathan Hanmann 0	Western Digital
Randy Hines 3	Philips	Arnold Limjoco 3	Yamaichi

Agenda

Agenda was approved with addition of technical issues.

Review of minutes [T10/97-135r0 t13/d97111r0] and old action items

SBP-2 [T10/1155D] (Monday)

Three of five action items were completed.

Isochronous Review

Peter Johansson reviewed his summary of SBP-2 changes:

It was decided that Plug Control (PCR) Registers will move from disk, to the computer since control over those registers belongs to the 'intelligent' node on the network. (P Johansson)

Cycle Mark offset shall be less than block size for the device.

Peter Johansson proposed to reserve the two least significant bits of "Stream Offset" in the Stream command block ORB. Dave Wooten objected and the issue will have to be reexamined.

Scott Smyers reviewed how cycle marks are put onto drive.

A discussion ensued on how the isochronous drives should behave during read errors. If a read error causes a drive to be unable to deliver the required data at the right time, the drive should send nothing until it can resync. There was a lot of discussion whether the drive should send zero size packets or send nothing. The error modes for a drive are:

1. Stop on error.
2. Continue sending data by sending zero packet lengths when correct data can not be delivered. Due to the resync requirement, cycle sync marks must occur at regular intervals. That is, the amount of isoch. data between cycle syncs are fixed.

There may be issues with requiring regularly spaced cycle marks. Scott will review the implications of error mode recovery.

AI: Scott to review implications of error mode recovery.

Isochronous write with nonzero offset will be a read-modify-write.

If any error results in the device being unable to resynch then the device shall STOP.

If an ORB finishes a write mid-sector, drive will pad remainder of that sector. The drive is NOT expected to read-modify-write partially written sectors.

There was an issue of merging stream task and flow control into one queue. Dave Wooten will investigate whether it's possible. In-room discussion seems to indicate that it would be very difficult to do so.

AI: Investigate merging stream task and flow control into one queue. (Dave Wooten).

The issue of transforming time stamps for record and replay of isochronous data came up. Scott Smyers gave an explanation of how it must be done, as explained in section 12 of SBP-2r02.

We need to define use of FMT.

It was noted that the Copy Protection Working Group progress will gate completion of isochronous work on SBP-2

AI: Scott Smyers will serve as Liaison between SBP-2 WG and Copy Protection Workgroup

Peter Johansson will change the stream control ORB in accordance with the removal of Plug Control Registers.

Recording maximum data chunk size @400Mb/s and playing back @100Mb/s can cause cycle sync overrun (missing cycle start). This will hang the isoch bus. The disk is not responsible for reducing the chunk size when recording at faster speeds. Some node other than the disk will have to be responsible for reducing the chunkiness of the data.

AI: Update SBP-2 with today's changes (Peter Johansson)

Technical Open Issues (Tuesday)

Agreed to include flush command and FUA bit in profile.

Power management feedback

Mike Bryant will define a register to define power state in profile.

Common Native Command Profile

Command Set: Mike Bryant proposed deletion of 12x commands. Much discussion bandied about regarding the need to support the 12x commands. Eventually we settled on supporting 10 and individual implementations can support 12 as needed. (not 6 not current 12 not new 12). Just support 10. No objections.

Later, Bob Snivley started a lively discussion by stating that we should add 3 commands to the Command Set: Test Unit Ready, Inquiry and Read (6).

Bob Snivley moved and Peter Johanssen seconded that we add Inquiry, Test Unit Ready, and Read (6) to the command set. The vote was For: 2, Against: 8.

Bob Snivley moved that we add inquiry to the command set. Some discussion followed where it was agreed that we need input from Curtis and Apple regarding all three commands. The motion was tabled.

It was agreed that the motion for adding these commands will be delayed until the next meeting.

AI: Check with Apple for Read(6), Inquiry, and Test Unit Ready (Dennis Pak)

The discussion took place regarding whether the drive's serial number should be used as part of the EUI-64 identifier.

Dennis Pak reviewed the C/DVD profile:

The C/DVD profile currently only has Asynch and read support. Support for -R and -RAM will be added later.

Randy Hines moved and Peter Johansson seconded that Pete McLean prepare a project proposal to make the command profile a T10 standards profile. The motion was passed unanimously.

AI: Randy to update C/DVD profile

Peter J will present the following position in SCSI-3, "On queue error = 11, abort the queue only for the affected initiator." There were no objections.

Peter J presented Task Management event matrix, doc 136r0 (on FTP site) There were no objections to the document's addition into SBP-2.

Mike Bryant will add a download microcode option on a write buffer command. No objections.

Logical Unit Reset: Peter Johansson requested making Logical Unit Reset optional in Tailgate as Tailgate can not reset one logical unit (ATA drive) w/o resetting the other (ATA drive). Peter Johansson will make Logical Unit Reset optional in SBP-2, while Mike Bryant will make Logical Unit Reset mandatory in the native drive profile.

In 8020, byte count reg on ATAPI DMA commands is not supported. Thus, tailgate DMA xfer can not use byte count register.

Editorial Changes

The issue came up of whether the mass storage profile should be separated into separate profiles for each mass storage device. There was a concern that this working group will be unable to adequately represent the needs of mass storage devices other than hard disks. Since separate documents would rapidly diverge it was agreed that, for now, the document would remain in its current format.

Mike will define `command_set_version` in 7.5.2 to point to annexes in the Mass Storage Profile. No objections. Also, Mike will change `command_set_version` to `comand_set_revision`.

In 7.5.6 of the Mass Storage Profile, Mike will fix the modify “length” field description, separating Vendor and Product identifications. Also he will add verbiage stating that the “Identification” fields will contain ASCII printing characters and will be padded with 20’s. Mike will refer to 1212 to insure format consistency.

Mode Select page size will change from 40 bytes long to 128 bytes long. See Table 7 in the Mass Storage Profile. There were no objections

It was stated that everyone should review Mode select/sense pages for thoroughness.

Should we redefine mode pages as we are, or use the current mode page definitions? Bob Snively stated that he doesn’t mind if there is only one mode page.

Tailgate Documentation [T13/D97107]

AI: Jon H to check power management (Device Bay) change in Tailgate with Device Bay folks (Tom Lenny/Steve Finch)

AI: Dave. E will resolve his concerns regarding PM bit and give results at next meeting.

Clarification of P & C bits.

Jon H to Clarify DMA & PIO definitions in Tailgate

Section 5.2.2 (TBD) deleted (Jon H)

Section 4.3.2.2 Para 3, sentence 1, will reword the sentence to remove reference to byte count.

Spec ID for NCITS Tailgate will be assigned an Organizationally Unique Identifier (040000-04FFFF is available for T13).

AI: Pete will get a number for Tailgate.

Jon H has issues with how OUIs are defined for Tailgate to insure backward compatibility.

Dave Evans brought up the issue of whether Tailgate can make ATAPI devices look native. After some discussion it was concluded that you can make it look more somewhat native but not completely native.

Issues raised by Symbios

Dave Evans suggested that autosense information should be returned in status. Peter Johansson objected as there is limited status space and we should be careful in consuming that space. Instead, you should (and can) create additional driver code to implement separate sense.

We need to get status response opinion from MSFT for all SCSI port devices - Peter J and others should address this issue

Dave Evans commented that we should add the status code to profile as discussed on the reflector.

Dave Evans commented that bus reset has 2 fields that are confusing. Bus reset should be same as abort task set except for login and management columns. See Table 4 on page 20 of Tailgate. It was agreed that we need input from Steve Finch before making this change.

AI: Dave E. will put the bus reset changes & justification on the reflector for discussion.

Action Items

1. David Wooten - investigate merging stream task and flow control into one queue.
2. Scott Smyers - keep us informed on copy protection.
3. Peter Johansson - new rev of SBP-2.
4. Dave Evans - put out reflector note on proposed changes in Tailgate reset table.
5. Jon Hanmann - raise Tailgate power control with Device Bay folks.
6. Dave Evans - resolve his concerns on M bit in Tailgate.
7. Pete McLean - get ID number for Tailgate.
8. Mike Bryan - new rev of command profile.
9. Jon Hanmann - new rev of Tailgate.
10. Pete McLean - prepare project proposal to T10 for command profile.
11. Randy Hines - new rev of C/DVD profile annex.

Issues

1. Status response for devices.
2. Reset table in Tailgate (bus reset action).
3. Addition of commands to command profile.
 - a. Tabled motion on read 6.
 - b. Test Unit Ready
 - c. Inquiry

Call for Patents

A call was made for applicable patents.

Meeting Schedule

4/10-11 SJ, CA Phoenix Tech.

5/5-6 Natick, MA - Digital

6/16-17 Irvine, CA - WD