

Accredited Standards Committee*

InterNational Committee for Information Technology Standards (INCITS)

Doc. No.: T10/05-273r0

Date: July 19, 2005

Reply to: John Lohmeyer

To: T10 Membership
From: Mark Overby & John Lohmeyer
Subject: SAT Working Group -- July 12, 2005
Colorado Springs, CO

Agenda

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Results of Meeting

1. Opening Remarks

John Lohmeyer called the meeting to order at 9:00 a.m. Tuesday, July 12, 2005. He thanked LSI Logic for hosting the meeting. As usual, the people present introduced themselves.

2. Approval of Agenda

The draft agenda was approved with no changes.

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3. Attendance and Membership

Attendance at working group meetings does not count toward minimum attendance requirements for T10 membership. Working group meetings are open to any person or organization directly and materially affected by T10's scope of work. The following people attended the meeting:

Name	S	Organization
Mr. William Lynn	P	Adaptec, Inc.
Mr. Kevin Marks	P	Dell, Inc.
Mr. Kenneth Hirata	A	Emulex
Mr. Ralph O. Weber	P	ENDL Texas
Mr. Wayne Bellamy	V	Hewlett Packard Co.
Mr. Dan Colegrove	P	Hitachi Global Storage Tech.
Mr. Robert Sheffield	P	Intel Corp.
Mr. Dennis Moore	AV	KnowledgeTek, Inc.
Mr. Joe Breher	V	Lingua Data
Mr. Brad Besmer	V	LSI Logic Corp.
Mr. Steve Johnson	V	LSI Logic Corp.
Mr. John Lohmeyer	P	LSI Logic Corp.
Mr. Owen Parry	V	LSI Logic Corp.
Mr. W. Hunsicker	V	Lucent Technologies
Mr. Mark Evans	P	Maxtor Corp.
Mr. Samantha Ranaweera	V	Network Appliance
Mr. Mark Overby	P	Nvidia Corp.
Mr. Craig W. Carlson	A	QLogic Corp.
Mr. Greg Elkins	V	QLogic Corp.
Mr. Jim Hatfield	V	Seagate Technology
Mr. William Martin	P	Sierra Logic, Inc.
Mr. David Allen	A	Vitesse Semiconductor
Mr. Curtis Stevens	P	Western Digital
Mr. Rich Ramos	V	Xyratex

Status Key: P - Principal
 A,A# - Alternate
 AV - Advisory Member
 L - Liaison
 V - Visitor

4. Old Business

4.1 SAT Work Items List (04-391) [Sheffield]

Bob Sheffield asked that this be deferred to the next meeting.

4.2 SAT - LOG SENSE command and SMART (05-142r1) [Bellamy]

Wayne Bellamy asked that this item be deferred to the next meeting as he is still working on the self-test results page.

4.3 SAT, START STOP UNIT command mapping (05-226r2) [Evans]

Mark Evans presented 05-226r2. Mark Evans received significant feedback about separating the FLUSH CACHE EXT from the STANDBY and making sure that on spindown if the drive failed to flush the cache. Also Mark received feedback to include the error cases and he would go back and find one CHECK CONDITION status ASC/ASCQ combination for each case. Mark Overby raised a question about can FLUSH CACHE abort if the write cache is disabled. Mark Evans believed that was not the cache. Mark Overby agreed to research this with T13 and drive companies and get back to Mark Evans if this would be a problem. Wayne Bellamy and Bob Sheffield both proposed that a better way of handling the errors could be to have a general statement in the commands referring readers to the error translation map with exceptions noted in the appropriate command. Mark Evans agreed to prepare a new revision from considerations at the next meeting.

4.4 WRITE BUFFER / Download Microcode [Hatfield]

Jim Hatfield asked, based on previous conversations, if only mode 5 of DOWNLOAD MICROCODE would be defined in SAT. Curtis Stevens moved, Jim Hatfield seconded, that modes 6 and 7 be marked as U, and associated text be removed, in the WRITE BUFFER translation. The motion passed with unanimous consent. Jim stated that the issue is closed and could be removed from the agenda.

4.5 SAT - ATA Errors to SCSI Errors - Translation Map (05-233r0) [Bellamy]

Wayne Bellamy presented 05-233r1, SAT - ATA Errors to SCSI Errors - Translation Map. Curtis Stevens noted that WP bit was not defined for translation. Wayne agreed to add this to the document. Ralph Weber asked for a change to the table to separate the sense code from the additional sense qualifier. Curtis also noted the AMNF bit was defined in a standard that had been withdrawn. There was significant discussion about the fact that the WP bit is valid only for certain commands. Various ATA implementers stated that this is the way ATA works with overloaded status bits that have different meaning depending on the command context.

Wayne Bellamy moved, Curtis Stevens seconded, that 05-223r2, as revised, be recommended for inclusion into SAT. The motion passed with unanimous consent.

4.6 SAT - Informational Exceptions Control mode page (05-238r0) [Bellamy]

Wayne Bellamy presented 05-238r1, SAT - Informational Exceptions Control mode page. Wayne asked for guidance about what to put in the Changeable column, Ralph Weber stated that it should be n/a for the column. Bob Sheffield agreed to add a definition of n/a into the acronym section of SAT. A significant amount of feedback was provided to Wayne about the wording necessary for indicating what fields in the mode page are required, forced to be not supported, and unspecified and the differences between those. Ralph provided text to Wayne to incorporate into his proposal.

Wayne Bellamy moved, Kevin Marks seconded, that 05-238r1, as revised, be recommended for inclusion into SAT. The motion passed with unanimous consent.

4.7 SAT - Read-Write Error Recovery mode page (05-241r1) [Bellamy]

Wayne Bellamy presented 05-241r1, SAT - Read-Write Error Recovery mode page. Wayne received editorial feedback from Bob Sheffield and Ralph Weber to make the description of this mode page consistent with other mode pages and to be consistent with SCSI standards. Kevin Marks, Curtis Stevens, and Jim Hatfield provided further feedback about the meaning. Wayne noted that table 4 from this proposal would be deleted. Wayne Bellamy moved, Bob Sheffield seconded, that 05-241r1, as revised, be recommended for inclusion into SAT.

4.8 SAT: Add 16-byte CDBs and PIO modes (05-247r1) [Sheffield]

Bob Sheffield reviewed 05-247r1, SAT: Add 16-byte CDBs and PIO modes. The group reviewed the proposal page by page.

The group provided significant feedback to Bob about the table for command constraints and the footnotes for that table. Bob made several clarifying changes during the review of the command table. Ralph Weber provided an updated table for Bob to review. Curtis Stevens suggested that the FORMAT UNIT command should be modified to allow the use of the procedures used for WRITE SAME (i.e. using ATA SCT) when IP is set to one.

Jim Hatfield asked if when the SAT type is U, should there be a reference to the relevant SBC or SPC standard. Significant discussion was held amongst the group about the merits of having a reference or not having a reference. A straw poll was held if a) the reference field should be blank if SAT Type is U or b) For SAT Type U references should be provided to the relevant SBC or SPC standard. 11 votes were recorded for option a and 1 vote for option b.

A lengthy discussion ensued between Wayne Bellamy, Mark Overby, and others about FUA on read. Wayne stated a preference that if FUA could not be directly supported for read, then the command should be aborted. Mark stated opposition to this point saying that only very new SATA drives could be used with a SATL because of the way operating systems behave. Ralph and Jim both noted that the text currently prohibits emulating FUA behavior and Bob Sheffield agreed to update the text.

Jim noted some significant problems with the way READ CAPACITY reports the number of user addressable sectors in that the location specified in IDENTIFY DEVICE data may not be correct. Further notes were made to clarify the text around how the capacity is calculated and how some could be reserved for use by the SATL.

Bob agreed to revise the document for the next meeting.

5. New Business

5.1 PACKET / non-PACKET Device Definition (05-253) [Overby]

Mark Overby reviewed 05-253r0, which adds definitions for ATA devices to clean up the language for a device that implements the packet feature set versus a device that does not. Mark made one edit inline to make the language identical to that appearing in ATA/ATAPI-8. Mark Overby moved, Bob Sheffield seconded, that 05-253r0, as revised, be recommended for inclusion in SAT. The motion passed with unanimous consent.

5.2 SAT: WRITE SAME (10) command (41h) (05-270) [Ranaweera]

Samantha Ranaweera asked that the proposal be withdrawn as he was unaware of the previous work on WRITE SAME that was already recommended for inclusion.

5.3 SAT Task Management (05-108) [Johnson]

Due to a lack of time, this item was deferred to the next meeting.

5.4 SAT: COMRESET Notification (05-280) [Overby]

Mark Overby reviewed 05-280r0, SAT: COMRESET Notification. Significant feedback was given to Mark about the language involving COMRESET and link reset. Mark made edits immediately to address the feedback. In addition, feedback was also given about which ASC to use. A long discussion ensued and there was general agreement to

use POWER ON, RESET, or BUS DEVICE RESET OCCURRED. Jim Hatfield noted that for a parallel bus, both devices would need to indicate the reset occurred. Mark added such language.

Mark Overby moved and Curtis Stevens seconded, that 05-280r0, as modified, be recommended for inclusion in SAT. The motion passed with unanimous consent.

6. Review of (SAT) Working Draft

Due to a lack of time, this item was deferred to the next meeting.

7. Review of Recommendations

John Lohmeyer noted that the working group made the following recommendations to the T10 plenary:

For inclusion in SAT (from June 1):
05-136r2 (REASSIGN BLOCKS command) [Bellamy]
05-177r2 (Write Same Translation) [Stevens]

For inclusion in SAT (from June 20):
05-239r1 (Caching mode page) [Bellamy]
05-229r0 (Remove Persistent Reservation Commands) [Lohmeyer]
05-227r2 (READ MEDIA SERIAL NUMBER proposal) [Overby]

For inclusion in SAT (from July 12):
05-233r3 (ATA to SCSI Errors) [Bellamy]
05-238r2 (Informational Exceptions Mode Page) [Bellamy]
05-241r2 (Read-Write Error Recovery Page) [Bellamy]
05-280r1 (SAT: COMRESET Notification) [Overby]
05-253r1 (PACKET / non-PACKET Device Definition) [Overby]

8. Meeting Schedule

A SAT Working Group meeting is scheduled for:

Monday August 22, 2005 from 9:00 a.m. to 5:00 p.m. in Boulder, CO, at the Hotel Boulderado (303-440-2880), hosted by Intel.

Tuesday September 13, 2005 from 9:00 a.m. to 5:00 p.m. in Vancouver, BC at the Vancouver Marriott Pinnacle Downtown Hotel (604-684-1128; Reservations: 800-207-4150), hosted by PMC-Sierra.

A teleconference call is scheduled for:

Tuesday, July 26, 2005 at 1:00 p.m. to 4:00 p.m. MDT. Bob Sheffield will post an announcement to the T10 reflector.

9. Adjournment

The meeting was adjourned at 5:45 p.m. on Tuesday, July 12, 2005.