

Accredited Standards Committee*
InterNational Committee for Information Technology Standards (INCITS)

Doc. No.: T10/05-088r0

Date: February 25, 2005

Reply to: John Lohmeyer

To: T10 Membership
From: Mark Evans and John Lohmeyer
Subject: SAT Working Group -- February 24-25, 2004
Santa Clara, CA

Agenda

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4. Old Business
 - 4.1 ATA Command Pass-Through (04-262r7) [Stevens]
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 - 4.3 SAT ATA Protocol Specific Mode Page Proposal (04-397r1) [Overby]
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 - 5.1 READ BUFFER / WRITE BUFFER op-code issue (T10 Reflector) [Martin]
 - 5.2 Comments re Linux issues (email from Jeff Garzik)
6. Review of SAT Working Draft
7. Review of Recommendations
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Results of Meeting

1. Opening Remarks

John Lohmeyer called the meeting to order at 1:00 PM Thursday, February 24, 2005. He thanked Mark Overby of nVidia for hosting the meeting. As usual, the people present introduced themselves.

2. Approval of Agenda

The draft agenda was approved with no changes.

No items were added or revised during the course of the meeting.

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:

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SCSI/ATA Translation Working Group Attendance Report - February 2005

Name	S	Organization
Dr. Raghu Sastry	V	Agilent Technologies
Mr. Kenneth Hirata	A	Emulex
Mr. Ralph O. Weber	P	ENDL Texas
Mr. Mike Fitzpatrick	P	Fujitsu
Mr. Dan Colegrove	P	Hitachi GST
Mr. Steve Livaccari	V	IBM Corp.
Mr. Robert Sheffield	P	Intel Corp.
Mr. John Lohmeyer	P	LSI Logic Corp.
Mr. Mark Evans	P	Maxtor Corp.
Mr. Mark Overby	P	nVidia Corp.
Mr. Jim Hatfield	V	Seagate Technology
Mr. William Martin	P	Sierra Logic, Inc.
Mr. Curtis Stevens	P	Western Digital

13 People Present

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

4. Old Business

4.1 ATA Command Pass-Through (04-262r7) [Stevens]

Curtis Stevens reviewed the latest draft of his proposal. Curtis reported that he had posted revision 8 of the proposal and would review the next revision at the March working group meeting in Dana Point.

4.2 SAT: Remaining Work Items (04-391r2) [Sheffield]

Bob reviewed the latest revision of the document containing the list he is maintaining that itemizes the known work items to be completed for the project and the status of those items. Bob reported that he will continue to maintain this list until the project is complete.

Jim Hatfield provided feedback on additional sense codes for errors for the REASSIGN BLOCKS command. The following is a list of codes that indicate failure with the reassign operation provided by Jim:

sense key/ ASC ASCQ

```
03/ 0C 02 Write Error - Auto Reallocation Failed
03/ 11 04 Unrecovered Read Error - Auto Reallocation Failed
03/ 14 01 Record Not Found
03/ 32 01 Defect List Update Error
04/ 32 00 No Defect Spare Location Available
04/ 32 01 Defect List Update Error
09/ 80 00 Vendor specific, used for several rare internal defect list errors
that are detected
```

Jim reported that some of these errors might only apply to a read or write command that determines the need for auto-reallocation rather than for a REASSIGN command (like the first two on the list) but they are included for interest.

4.3 SAT ATA Protocol Specific Mode Page Proposal (04-397r1) [Overby]

Mark Overby reviewed the latest revision of his proposal for a protocol specific mode subpage for SAT. There are two subpages, one for parallel ATA devices and one for serial ATA devices. Mark said that he has identified information that should be passed from a SATA device to an application for phy control (e.g., SSTATUS, SCONTROL, and SERROR). Mark said that he will make a proposal for SAS for an SMP function to send and receive this information.

Mark agreed to make a new revision of his proposal including input from the working group.

5. New Business

5.1 READ BUFFER / WRITE BUFFER op-code issue (T10 Reflector) [Martin]

Bill Martin pointed out that Bob Sheffield had transposed op codes for READ BUFFER and WRITE BUFFER. Bob said that he had already addressed the issue in his working document.

5.2 Comments re Linux issues (email from Jeff Garzik)

1) Comment: READ CAPACITY(16) is "optional" not "unsupported". It is illogical that READ(16) and WRITE(16) are optional, but READ CAPACITY(16) is unsupported. The Linux SATA SATL currently supports READ CAPACITY(16), READ(16) and WRITE(16), and has for over a year now.

Response: The working group agreed that the only reason to use READ CAPACITY(16) would be when using the PMI bit to find discontinuities and using the LBA to specify the starting point. Bob Sheffield has the action item to ask Jeff Garzik if use of PMI is the reason Linux uses Read Capacity 16, and if so, does SAT need to define use of the PMI bit? The group likes the way it is with "PMI shall be zero".

2) Comment: As Editor's Note 33 hints, SYNCHRONIZE CACHE should be implemented with FLUSH CACHE EXT or other methods.

Response: The working group agreed that, if the 48-bit command set is implemented, then FLUSH CACHE EXT should be used so that any error information can be reported properly. If the 48-bit command set is not implemented, then FLUSH CACHE should be used.

3) Comment: In Table 65 (Caching mode page fields), the text "By default, this bit shall be set to 1 to indicate that write caching is enabled." describes an inconsistent action. The WCE bit should reflect the current state of the device, but the SATL text implies something different.

Response: Bob Sheffield agreed to delete the statement about the default condition of WCE.

4) Comment: Further down in Table 65, the DRA (disable read ahead) text has the same problem: "By default, this bit shall be set to 0 to indicate that read look-ahead is enabled." The DRA bit should reflect the current state of the device.

Response: Bob Sheffield agreed to delete the statement about the default condition of DRA.

5) Typo in Table 66: text "xxx if this bit is 0b" is repeated twice. Clearly, the second sentence is incorrect: DEXCPT bit: "[...]SMART is enabled if this bit is 0b."

Response: Bob Sheffield agreed to make the correction.

Other discussion:

If a SATA device goes through async signal recovery, the host doesn't know which features in a device are enabled or disabled. It was suggested that a note be added somewhere saying that, if the SATL receives an indication that the configuration of an ATA device may have changed (e.g., a change notification in SAS), then the SATL shall restore the configuration or provide event notification to cause the SCSI application client to restore the configuration. The group felt that someone should attempt to write a proposal on handling the device state when conditions occur that may change device settings.

There was a suggestion that T13 should define default values for SET FEATURES features. However, it was stated that this has been discussed before at T13 with no conclusion because consensus could not be achieved as to what these settings should be.

6. Review of SAT Working Draft

Bob reviewed the latest revision of his draft (SAT-r2), beginning with the change bars. Review will continue at the next meeting.

7. Review of Recommendations

Mark Evans noted that the working group made the following recommendation to the T10 plenary:

none

8. Meeting Schedule

SAT Working Group meetings are scheduled for:

Tuesday, March 8, 2005 from 9:00 AM to 1:00 PM in Dana Point, CA at the Laguna Cliffs Marriott Resort (800-545-7483), hosted by QLogic.

Monday, April 18, 2005 from 9:00 AM to 5:00 PM in Longmont, CO, contingent on Seagate being able to host the meeting (Steve Johnson will speak with Jim Hatfield to see if he can accommodate this date).

Teleconference calls are scheduled for:

No calls are scheduled.

9. Adjournment

The meeting was adjourned at 11:45 AM on Friday, February 25, 2005.