

To: T10 Technical Committee
 From: Robert Sheffield, Intel (robert.i.sheffield@intel.com)
 Date: 28 March 2005
 Subject: 04-391r3 SAT: Work Items List

Revision history

Revision 0 (8 November 2004) - First revision

Revision 1 (16 December 2004) - Add completed items, and target/Lun mapping.

Revision 2 (18 January 2005) - Add REASSIGN BLOCKS & reassign security modes task

Revision 3 (18 March 2005):

- a) Add 04-218r8 INQUIRY data contents integration as a completed task.
- b) Mark done restructuring SAT to include a clause on SCSI extensions to SAT
- c) Tag the ATAPI extensions item as clause 14 instead of 13 (due to item-b above)
- d) Add a task to add a subclause for reporting ATA host capabilities in INQUIRY VPD data.
- e) Modified the scope of the ATA power modes task.
- f) Modified target/LUN mapping task to include two PATA drives on a cable.
- g) Added some new tasks.
- h) Marked Passthrough Commands and SATL-specific mode page as done.

Related documents

SAT-r02 - SCSI / ATA Translation revision 2

Overview

There are several remaining work items yet to be done to complete the SAT standard. This document briefly describes each work item, with the intent that any of the SAT WG contributors can volunteer to draft proposals to provide the needed text related to each of these items..

Table 1 — SAT work items (part 1 of 4)

Item	Description	Owner	Status
1)	Post rough draft defining basic content of SATL standard (T10/04-136r0 SCSI to ATA Command Translations).	Steve Johnson and Samantha Ranaweera	Done June 2004
2)	T10 plenary approval of SAT project proposal (T10/04-174r3).	Sheffield	Done July 2004
3)	Reformat for T10 standards template and post first SAT draft.	Sheffield	Done August 2004
4)	Define and incorporate common table format for translations (04-260r2).	Stevens / Sheffield	Done Sept. 2004
5)	Add SAT-specific INQUIRY page 0x83 (04-219r3)	Elliott, Bellamy, Sheffield	Done Sept 2004
6)	Define semantics to distinguish ATA devices (that don't support the packet command set) from ATAPI devices (that do support the packet command set).	Sheffield	Done- SAT-r1
7)	Extend the general clause to identify objectives and guidelines to focus on consistency in implementations for SAT-aware and non-SAT aware operating systems and the importance of limiting flexibility to ensure correct results, as much as possible, for existing (non-standard) SCSI-ATA translation implementations.	Sheffield	Done - SAT-r1

Table 1 — SAT work items (part 2 of 4)

Item	Description	Owner	Status
8)	Applied several refinements to task-management functions and supported command op-code translations based on SAT draft review in the August '04 teleconference, September '04 SAT WG meeting, and October '04 teleconference.	Sheffield	Done - SAT-r1
9)	Add a subclause for 04-218 SAT INQUIRY contents revising standard inquiry data and adding the Device Identification VPD page.	Elliott, Bellamy	Done - SAT-r2
10)	Restructure draft standard to break-out a separate clause for SATL-specific SCSI extensions to include new SCSI commands (e.g. ATA passthrough), new SATL mode pages (e.g. a mode page to specify ATA transfer/timing modes and security modes, and power modes).	Bob Sheffield	Done - SAT-r2
11)	ATA Passtrough command	Curtis Stevens	Done
12)	Add a subclause for a SATL-specific mode page to specify ATA transfer/timing modes (may be in a common SATL protocol-specific mode page).	Mark Overby	Done
13)	SMART section. Clause 11 has some skeleton text, but this section needs much elaboration to adequately address the translation.	Steve Johnson, Wayne Bellamy	Skeleton
14)	ATAPI Translations. Clause 14, "Translation for ATAPI devices" is currently a place-holder for this information. This section will probably expand to at least two sections, (ATAPI translations for Primary SCSI commands, and ATAPI translations for SCSI Block Commands), and may require an dedicated architecture section as well.	Mark Overby	Placeholder
15)	Define REASSIGN BLOCKS command	Bellamy	Editor's note in SAS-r2
16)	Sense Data and Error Reporting. Clause 12 currently is a place-holder for error reporting. It contains general templates for CDBs and data structures, which will be deleted when this clause is completed. Many of the required ASC/ASCQ responses are specified in-line in the main text, but it is likely there is general error reporting translation that needs to be specified, but is not so directly tied to the defined command translations to warrant putting the descriptions in the command translation subclauses themselves. This section will cover any needed sense reporting translation not covered in the command translation clauses. ATAPI may need special treatment here, since in most cases the ATAPI translation will be to forward the status reported by the ATAPI device.	Wayne Bellamy	Placeholder
17)	Mode pages and Log pages. Clause 10 defines some mode page and log page translations. The task remaining is to take a thorough look at the defined SPC-3 and SBC-2 mode and log pages to determine what else needs specific translation in SAT. There also may be a need to define a SAT-specific mode page.	Wayne Bellamy, Mark Overby will help	

Table 1 — SAT work items (part 3 of 4)

Item	Description	Owner	Status
18)	Add a subclause for reporting ATA host capabilities in INQUIRY VPD data	Mark Overby	
19)	Add a subclause for a SATL-specific mode page to specify ATA security modes (may be in a common SATL protocol-specific mode page).	Mark Overby	In progress
20)	Add a subclause for to specify ATA power modes.	Mark Evans	See editor's note in SAT-r2
21)	Add a normative text in the task-management subclause referring to the SCSI-2/SPI to describe translation of "Bus Reset".	Steve Johnson	In progress
22)	Rewrite sections to better define NCQ mapping, including handling of commands queued internally by the SATL.	Steve Johnson	In progress
23)	Define handling of legacy TCQ handling for SATA devices that implement TCQ instead of NCQ	Mark Overby	In progress
24)	Describe Target/LUN mapping options, in particular when a SATA port multiplier is involved (e.g. if the port multiplier is attached to an STP/SATA bridge in an expander, the SATL <i>might</i> present it as a target represented by the SAS address of the STP/SATA bridge with LUNs representing the SATA devices attached to the port multiplier). Also address two PATA drives on a common cable. This could also address the possibility of defining a WLUN to represent the SATL itself, even when no ATA devices are attached. This should be an informative annex - some don't want to be restricted to reporting devices as logical units or as target devices for specific configurations.	Sheffield, Elliott	New
25)	Draft subclause 5.3 Device Error States to describe handling of device error conditions (e.g. if DF is one, return a sense key of HARDWARE ERROR with an additional sense code of [LOGICAL UNIT FAILURE or INTERNAL TARGET FAILURE]).		
26)	Define PIO modes for all SCSI/ATA translations that generate READ/WRITE commands to non-packet devices. This involves adding a column to the translation tables at the start of each command subclause to specify whether DMA is supported (by both the SATL and the device), and adding appropriate rows to list non-DMA PIO commands used.	Sheffield	queued
27)	Draft a proposal for the READ MEDIA SERIAL NUMBER command	Mark Overby	New
28)	Report Supported Task Management Functions proposal	Steve Johnson	New
29)	SCSI Architectural Elements Add a section that discusses device error states and, in particular, if the Device Fault bit (DF) is ever set, reject any subsequent SCSI commands with sense key HARDWARE ERROR?, and additional sense code that says the device is broken.	Bob Sheffield	New

Table 1 — SAT work items (part 4 of 4)

Item	Description	Owner	Status
30)	Add READ CAPACITY (16) and other 16-byte CDB commands that access media.	Bob Sheffield	New