

**Project Proposal
for a new
INCITS Standard**

**SCSI / ATA Translation - 3
(SAT-3)**

5 May 2008

1 Source of Proposed Project

1.1 Title: SCSI / ATA Translation - 3.

1.2 Date Submitted: 5 May 2008.

1.3 Proposing Group: T10.

2 Process Description for the Proposed Project

2.1 Project Type: D - Development.

2.2 Type of Document: Standard.

2.3 Definitions of Concepts and Special Terms: none.

2.4 Expected Relationship with Approved Reference Models, Frameworks, Architectures, etc.

None, it is expected that this standard will be used in closed systems.

2.5 Recommended INCITS Development Technical Committee: T10.

2.6 Anticipated Frequency and Duration of Meetings

Technical Committee T10 meets on a regularly scheduled basis (see <http://www.t10.org> for the current meeting schedule). Specific task ad hoc groups are called as required between the regular meetings but their results are not binding. It is anticipated multiple interim working group meetings will be scheduled to align with T13 meetings.

2.7 Target Date for Initial Public Review (Milestone 4): January 2010.

2.8 Estimated Useful Life of Standard or Technical Report: 5 Years.

3 Business Case for Developing the Proposed Standard or Technical Report

3.1 Description

The SCSI / ATA Translation defines standard mappings and behaviors among implementations that effect the behavior of SCSI devices as viewed by a host driver where the physical devices are ATA class devices presented to the host by applying a translation layer between the Serial ATA or Parallel ATA device and the SCSI interface. This project creates the next generation of translation of SCSI commands and behaviors into the ATA commands and behaviors, leveraging the previous SAT standard for expansion.

This generation of the standard also maps new features from SAS-2.0 or the ATA-8 (or SATA-IO) family of standards into translations appropriate for the ATA domain or SCSI domain, respectively.

The following items should be considered for inclusion in SCSI / ATA Translation-3.;

- 1) Translation of ATA security feature sets for a SCSI environment;;
- 2) Defining the use of ATA ACS-2 feature sets in a SCSI domain;
- 3) Define elements to facilitate use of SATA port selectors and SATA port multipliers;

- 4) Reporting ATA host capabilities/control through mode page (e.g., NCQ Control);
- 5) Describe LUN mappings in the presence of a port multiplier;
- 6) Describe End to end data protection in SAT;
- 7) Standardize SAT space reservation on ATA device;
- 8) Reserve / Release (for Microsoft WHQL)
- 9) Additional SATA PHY control in a SAS domain (SAS Protocol proposal);
- 10) Log Counter translation (ATA device statistics log page);
- 11) Persistent Reservations translations;
- 12) SMART ATA Sub Command translations with log sense;
- 13) ORWRITE Translation;
- 14) Tie COMMANDS CLEARED BY DEVICE SERVER to Clear Task Set;
- 15) SATL Disk data format for stored information (e.g., mode pages);
- 16) Saveable mode pages (standardized format);
- 17) ATA Passthrough for READ LONG / WRITE LONG using SCSI transport;
- 18) Security protocol EFh translation to ATA commands;
- 19) Add QUERY TASK SET and QUERY UNIT ATTENTION translations; and
- 20) Other capabilities, commands, translations, or behaviors that are appropriate for ATA devices in a SCSI environment.

3.2 Existing Practice and the Need for a Standard

The proposed project would evolve the previously developed standard to include new functionality and further define appropriate translations into the SCSI domain for ATA feature sets that were not defined for previous generations of the SAT standard.

3.3 Implementation Impacts of the Proposed Standard

3.3.1 Development Costs

Members of T10 will provide the necessary resources. The T10 members will host the required meetings for development, provide for the necessary lab experiments, and provide the Technical Editor for the project.

3.3.2 Impact on Existing or Potential Markets

This proposed project is intended to provide a more consistent mapping of SCSI to ATA. This ensures that investments in such mappings have a stable managed migration path in the face of technological development in both the SCSI and ATA standards.

3.3.3 Costs and Methods for Conformity Assessment

The committee will consider the results of testing as may be available to the committee through the voluntary efforts of the various participants in T10. With this method all costs are borne by the organizations of the various participants and have for the most part been mainly an adjunct of their normal development costs.

3.3.4 Return on Investment

ROI information is considered proprietary data by the member organizations, but members have stated that the ROI is expected to be large.

3.4 Legal Considerations

3.4.1 Patent Assertions

Calls will be made to identify assertions of patent rights in accordance with the relevant INCITS, ANSI, and ISO/IEC policies and procedures.

3.4.2 Dissemination of the Standard or Technical Report

Drafts of this document will be disseminated electronically. Dissemination of the final standard will be restricted, as the document becomes property of INCITS, ANSI, and/or ISO/IEC.

4 Related Standards Activities

4.1 Existing INCITS / ANSI Standards:

ID Number	Title
NCITS.330-2000	Reduced Block Commands (RBC)
NCITS.330-2000/AM1-2003	RBC Amendment-1
NCITS.360:2002	MultiMedia Command Set - 3 (MMC-3)
INCITS.380:2003	SCSI Stream Commands - 2 (SSC-2)
INCITS.376:2003	Serial Attached SCSI (SAS)
INCITS.397.2005	AT Attachment - 7 with Packet Interface (ATA/ATAPI - 7)
INCITS.402.2005	SCSI Architecture Model - 3 (SAM-3)
INCITS.402.2005	SCSI Block Commands - 2 (SBC-2)
INCITS.408.2005	SCSI Primary Commands - 3 (SPC-3)

4.2 Related Standards Activity

ID Number	Title
T13/1700D	AT Attachment - 8 Architecture Model (ATA8-AAM)
T13/1699D	AT Attachment - 8 Command Set (ATA8-ACS)
T13/1698D	AT Attachment - 8 Parallel Transport (ATA8-APT)
T13/1697D	AT Attachment - 8 Serial Transport (ATA8-AST)
T10/1683-D	SCSI Architecture Model - 4 (SAM-4)
T10/1545-D	MultiMedia Command Set - 4 (MMC-4)
T10/1675-D	MultiMedia Command Set - 5 (MMC-5)
T10/1611-D	SCSI Stream Commands - 3 (SSC-3)
T10/1601-D	Serial Attached SCSI - 1.1 (SAS-1.1)
T10/1760-D	Serial Attached SCSI - 2 (SAS-2)
T10/1711-D	SCSI / ATA Translation (SAT)
T10/1731-D	SCSI Primary Commands - 4 (SPC-4)
T10/1799-D	SCSI Block Commands - 3 (SBC-3)

4.3 Corresponding ISO projects

ID Number	Title
ISO/IEC 14776	Multipart SCSI standard
ISO/IEC 14776-411	SCSI-3 Architecture Model (SAM)
ISO/IEC 14776-452	SCSI-3 Primary Commands - 2 (SPC-2)

4.4 Recommendations for Close Liaison

Technical Committee T13.

5 Units of Measurement used in the Standard

Not measurement sensitive.