

INCITS T10 Annual Report

Annual Report for: T10 Technical Committee
 Covering the Period: April 2004 to May 2005
 Title of INCITS Subgroup: SCSI Storage Interfaces

Links:

- T10 web site <http://www.t10.org/>
- [Executive summary](#)
- T10 area on the Secretariat's Projects Database http://www.incits.org/tc_home/t10sd4.htm
- T10 Projects Status <http://www.t10.org/projects.htm>
- [Significant accomplishments](#)
- [Significant challenges](#)
- [Expected challenges](#)
- [Previous year's meetings](#)
- [Next year's meetings](#)
- [Liaison activities](#)
- [Officers](#) and [Membership](#)
- [Future Trends](#)
- [Other administrative information](#)

• Informal Description of Work:

T10 is responsible for SCSI Storage Interfaces. Its principal work is the Small Computer System Interface (SCSI), including:

- parallel SCSI and Serial Attached SCSI (SAS) physical interfaces.
- SCSI architecture standards (e.g., SAM-4), which are used by SCSI, SAS, Fibre Channel, SSA, and IEEE 1394. and
- many SCSI command set standards (e.g., SPC-4, SBC-2, SSC-3, MMC-5, RBC, SMC-3, SCC-2, SES-2, OSD-2, BCC, ADC-2, etc.). These standards are used by almost all modern storage I/O interfaces, including SCSI, SAS, Fibre Channel, SSA, IEEE 1394, USB, and ATAPI (ATA).

1. Executive Summary

T10 continues to run smoothly with 62 approved projects, of which 43 are in maintenance mode. Most of the active projects are related to the SCSI family of standards. T10 membership is at 45 organizations, up from 38 last year. This increase is largely due to increased interest in Serial Attached SCSI (SAS).

Over the last few years, I/O storage interconnects have moved to serial technology for new applications. Parallel SCSI and parallel ATA shipments are expected to peak this year and gradually decline in favor of SAS and SATA. Of course, Fiber Channel and iSCSI are already serial interfaces.

Serial technology inherently enables larger topologies, both in distance and in numbers of devices. These larger topologies have required some enhancements in the SCSI architecture and the command sets (e.g., access controls, extended copy commands, persistent reservations, etc.). This has also led to organizations joining T10 that have not previously participated (e.g., Microsoft, Intel, Cisco Systems, and Oracle).

2. Significant accomplishments

- Serial Bus Protocol 3 (SBP-3): INCITS 375-2004 was approved and published
- SCSI Media Changer Commands - 2 (SMC-2): INCITS 382-2004 was approved and published
- Object-Based Storage Device Commands (OSD): INCITS 400-2004 was approved and published
- SCSI Architecture Model - 3 (SAM-3): INCITS 402-2005 was approved and published
- Automation/Drive Interface - Commands (ADC): INCITS 403-2005 was approved and published
- MultiMedia Command Set - 4 (MMC-4): INCITS 401-2005 was approved and is at ANSI for publication
- SCSI Block Commands - 2 (SBC-2): INCITS 405-2005 was approved and is at ANSI for publication
- Automation/Drive Interface - Transport Protocol (ADT): INCITS 406-2005 was approved and is at ANSI for publication
- SCSI Primary Commands - 3 (SPC-3): INCITS 408-20xx is at first public review (closes 11 July)

3. Significant challenges

It appears that the computer industry recovery is real, but gradual. Committee membership is increasing as the industry begins to adopt SAS and SATA technology.

4. Expected challenges

None expected.

5. Committee Activities

a. Previous year's meetings

Number	Date	Location
#61	May 6, 2004	Monterey, CA
#62	July 15, 2004	Colorado Springs, CO
#63	September 16, 2004	Nashua, NH
#64	November 11, 2004	Austin, TX
#65	January 20, 2005	Las Vegas, NV
#66	March 10, 2005	Dana Point, CA
#67	May 5, 2005	Oklahoma City, OK

b. Next year's planned meetings

<http://www.t10.org/meeting.htm>

6. Liaison activities

INCITS T11 <http://www.t11.org/>

INCITS T13 <http://www.t13.org/>

SFF Committee <http://www.sffcommittee.org/>

IEEE P1394

SCSI Trade Association (STA) <http://www.scsita.org/>

IETF SCSI over IP <http://www.ietf.org/html.charters/ips-charter.html>

Storage Networking Industry Association (SNIA) <http://www.snia.org/>

ISO/IEC JTC1/SC25/WG4

Serial ATA Working Group <http://www.serialata.org/>

7. Officers and membership

a. Officers

Position	Name	Organization	Training date
Chair	John Lohmeyer	LSI Logic	December 2002
Vice Chair	George Penokie	IBM/Tivoli	December 2002
Secretary	Ralph Weber	ENDL Texas	December 2002
International Representative	Gary Robinson	EMC	May 2002
Vocabulary Representative	open		

b. Membership

T10 Attendance Database: <http://www.t10.org/ftp/t10/members.txt>

INCITS T10 Membership list: http://www.t10.org/ftp/t10/t10_incits_20050506.pdf

8. Future trends

Shipments of parallel interface storage devices (parallel ATA and parallel SCSI) are expected to peak in 2005. New applications are being designed for serial interfaces: SAS, SATA, Fibre Channel, and iSCSI.

There is especial interest in SAS and SATA, because these two interfaces share the same physical layer. Systems integrators can build products that use either SATA or SAS disk drives, depending on cost, performance, and reliability objectives.

While some people expect SAS and SATA to displace Fibre Channel disk drive applications, the jury is still out. Many of these applications have been shipping for years; unless the new interfaces offer significant advantages, systems integrators are unlikely to change.

The SCSI command sets are evolving to encompass the latest developments in storage (e.g., much larger address spaces, DVDs, CD-Recordable devices, and array controllers) as well as refinements to deal with current interconnect issues (e.g., network storage, security, and power management).

9. Other administrative information

Video Projectors

As noted for several years, availability of video projectors at committee meetings is critical to having effective meetings. Hotel rental charges often exceed \$500 per day to rent a video projector. The situation has improved somewhat as more T10 members (including myself) are bringing video projectors to our meetings. Also, some hosts are able to supply one or two projectors for T10 usage.

I am still requesting that INCITS consider ways to address this problem. One possible solution would be for INCITS to purchase a few video projectors that could be loaned to subgroups for specific meetings.

Financial Statement

The INCITS Secretariat maintains an escrow account on T10's behalf to pay for technical editing services. See the T10 Procedure for Funding Technical Editors <http://www.t10.org/ftp/t10/document.95/95-148r0.pdf> for details of how this account is administered. The current account balance as of September 17, 2003 is \$31,830.75. *I assume this amount is unchanged since September 2003 as T10 has not requested any expenditure nor have additional funds been collected.*

T10 Internal Procedures

The T10 internal procedures are as follows:

Procedure	URL
T10 Standards Development Policies and Procedures	http://www.t10.org/ftp/t10/document.00/00-283r1.pdf
T10 Electronic Procedures	http://www.t10.org/ftp/t10/document.95/95-146r2.pdf
T10 Procedure for Funding Technical Editors	http://www.t10.org/ftp/t10/document.95/95-148r0.pdf
T10 Document Retention Policy	http://www.t10.org/ftp/t10/document.98/98-107r1.pdf
T10 Plenary Meetings & Accompanying Meeting Weeks	http://www.t10.org/ftp/t10/document.00/00-221r2.pdf