

**INCITS 2004 ANNUAL REPORT**  
Covering the Period from 1/16/2003 through 1/13/2004  
**Technical Committee T13**  
**ATA Storage Interface**

January 14, 2004

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**T13 Website** <http://www.t13.org/>

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**Informal Description of Work:**

Technical Committee T13 is responsible for all interface standards relating to the popular AT Attachment (ATA) storage interface utilized as the hard disk drive, CD, and DVD interface on most personal and mobile computers and personal video recorders today.

**1. Executive Summary**

At the moment, T13 is responsible for seven published standards, two published technical reports, one draft technical report, and four draft standards in development. Two new projects were initiated, and two published standards were withdrawn during the year.

T13 began the year with 21 voting principal members and closed the year with 19 voting principal members.

Because the ATA interface is contained totally within the host computer enclosure and does not provide an external interface, Technical Committee T13 did not previously participate in the international standards process. T13 plans to pursue international standardization for project 1532D AT Attachment with Packet Interface – 7.

## **2. Significant Accomplishments**

Two new projects were initiated, and two published standards were withdrawn during the year.

T13 was approached by the Consumer Hard Disk Drive Working Group of IDEMA Japan. During the development of ATA/ATAPI-7 a number of changes were made in the Audio/Visual commands in the ATA/ATAPI-7 draft to meet the needs of these consumer product companies.

T13 Incorporated the Serial ATA 1.0a specification in to the ATA/ATAPI-7 draft document.

## **3. Significant Challenges**

None.

## **4. Expected Challenges.**

There may be extensions to ATA/ATAPI-7 circulated in the form of manufacturer's specifications that are not subsequently proposed for inclusion in follow on projects. T13 will make every effort to see that new disk drive features that find acceptance in the industry are incorporated in future standards.

## **5. Projects (Status 1/14/04)**

An "x" in the first column of this table indicates that revision or development work is going on in this project; a "c" indicates re-affirmation activities. Details can be found below in the project discussions.

## T13 Annual Report 2003

Work	Project	NCITS/ANSI	Title
c	1153D	INCITS 317-1998	AT Attachment Interface with Packet Extensions - 4
	1226DT	INCITS TR21-1998	Enhanced BIOS Services for Disk Drives
c	1248D	INCITS 316-1998	1394 to AT Attachment - Tailgate
	1321D	INCITS 340-2000	AT Attachment with Packet Interface - 5
	1367D	INCITS 346-2001	Protected Area Run Time Interface Extension
	1386D	INCITS 347-2001	BIOS Enhanced Disk Drive Services
	1407DT	INCITS TR27-2001	Address Offset Alternate Boot Feature
	1410D	INCITS 361-2002	AT Attachment with Packet Interface – 6
	1484D	INCITS 363-2002	BIOS Enhanced Dick Drive Services – 2
x	1510D	INCITS 370	ATA/ATAPI Host Adapter
x	1532D		AT Attachment with Packet Interface - 7
x	1572D		BIOS Enhanced Disk Drive Services – 3
x	1612DT		ATA/ATAPI AV Streaming Command Set Usage Guidelines
x	1641D		Protected Area Run Time Interface Extension Services - 2

### **1153D AT Attachment Interface with Packet Extensions – 4**

Published standard ANSI NCITS 317-1998 is the evolved ATA interface standard to include among other things, ATAPI transport protocol for CD and DVD devices and DMA data transfer to 33 Megabytes per second. ANSI NCITS 317-1998 was reaffirmed in February 2003.

### **1226DT Enhanced BIOS Services for Disk Drives**

Published Technical Report NCITS TR21-1998 provides technical information which facilitates the likely evolution of disk drives including the accommodation of disk drives with capacities greater than 8 Gigabytes.

### **1248D 1394 to AT Attachment - Tailgate**

Published standard ANSI NCITS 316-1998 defines the interconnect management, command, status, reset and security protocols for attaching ATA/ATAPI devices to the IEEE 1394 bus using SBP-2 transport protocols. ANSI NCITS 316-1998 was withdrawn in February 2003.

### **1321D AT Attachment with Packet Interface – 5**

Published standard ANSI NCITS 340-2000 is the evolved ATA interface standard to include among other things, conversion of protocol flow charts to state diagrams and DMA data transfer to 66 Megabytes per second.

**1367D Protected Area Run Time Interface Extension**

Published standard ANSI NCITS 346-2001 provides a BIOS interface for x86 based systems that a user can invoke to launch an alternate operating system when the main operating system fails to run. Important features include management of the reserved area used to store the alternate operating system, boot MS-DOS '95 or compatible operating system, and the emulation of the "A:" device using data in a protected reserved area on the media.

**1386D BIOS Enhanced Disk Drive Services**

Published standard ANSI NCITS 347-2001 provides a BIOS interface that allows an operating system to access mass storage devices on an x86 architecture PC without understanding mass storage device protocols. These extended BIOS services do not have the 8.4GB limitation.

**1407DT Address Offset Alternate Boot Feature**

Published Technical Report NCITS TR27-2001 describes a modification to a feature described in the ATA/ATAPI-4 standard allowing a secondary operating system to be booted from a reserved area with minimal BIOS changes.

**1410D AT Attachment with Packet Interface – 6**

1410D is the evolved ATA interface standard to include among other things DMA data transfer to 100 Megabytes per second and 48-bit addressing. 1410D was published as ANSI INCITS361-2002 on 20 September 2002.

**1484D BIOS Enhanced Disk Drive Services - 2**

1484D builds on EDD (ANSI NCITS 347-2001) to provide definition for the Packet Sending Service that was mentioned but not defined. This project extended the types of both buses and devices that can be controlled using the EDD services. SCSI RAID was added to EDD. 1484D was published as ANSI INCITS 363-2002 on 28 August 2002.

**1510D ATA/ATAPI Host Adapter**

1510D provides for the development and documentation of a standard programming interface for ATA host adapters. Currently the definitions of ATA host adapter programming interfaces are not well documented. 1510D was scheduled to be forwarded for first public review in January 2003. 1510D is at the INCITS Management Review stage.

**1532D AT Attachment with Packet Interface – 7**

1532D is the evolved ATA interface standard to include among other things DMA data transfer to 133 Megabytes per second. 1532D was initially scheduled to be forwarded for first public review in June 2003. T13 was offered the Serial ATA 1.0 specification for inclusion into the ATA/ATAPI standards by the consortium that developed the specification. T13 concluded that this material should be included in an ANSI standard as soon as possible. T13 voted to delay the forwarding of 1532D until this material can be included. 1532D is currently in 30 day letter ballot for forwarding to first public review. Letter Ballot comment resolution will be concluded by the end of the April 2004 T13 meeting.

**1572D BIOS Enhanced Disk Drive Services - 3**

1572D builds on EDD-2 (ANSI NCITS 363-2002) to address Infiniband, PCI Express, HyperTransport, Serial ATA, CD-ROM Boot, and INT 13 Functions 0-39h. This project will further extended the types of both buses and devices that can be controlled using the EDD services. 1572D was scheduled to be forwarded for first public review in February 2003. The project was delayed due to personnel changes at the member companies with technical expertise in the subject of this project. T13 discussed the status of this project at its December 2003 Plenary meeting. Several member companies committed to work actively on the project. Forwarding to first public review will be delayed until August 2004.

**1612DT ATA/ATAPI AV Streaming Command Set Usage Guidelines**

1612DT will provide additional information on the use of the Streaming Command Set feature of 1532D AT Attachment with Packet Interface – 7. The schedule for forwarding 1612DT was established before 1532D was delayed for the inclusion of Serial ATA. During the delay improvements were made in the Streaming Command Set which delayed development of 1612DT. Forwarding of the Streaming Command Set Usage Guidelines will be delayed from April 2004 to June 2004.

**1641D Protected Area Run Time Interface Extension Services – 2**

1641D PARTIES-2 builds on 1367D PARTIES. 1641D will include support for management features that allow management of the PARTIES area on the media by multiple vendors and customers. It will also provide features for locking and removal of the PARTIES area to increase reliability of PARTIES installations. The project is on schedule to be forwarded to first public review in August 2004.

**6. Committee Activities**

**a. Previous Year's Meetings (Dates and Locations)**

#39	Feb 18-20, 2003	Irvine, CA – Pacific Digital
Ad Hoc	Mar 4-5, 2003	Irvine, CA – Pacific Digital
#40	Apr 22-24, 2003	Longmont, CO – Seagate
Ad Hoc	May 28-29	Irvine, CA – Pacific Digital
#41	June 24-26, 2003	San Jose, CA – Phoenix
Ad Hoc	July 31- Aug 1, 2003	Longmont, CO – Seagate
#42	Aug 19-21, 2003	Longmont, CO - Maxtor
#43	Oct 21-23, 2003	Las Vegas, NV – Fujitsu
#44	Dec 16-18, 2003	Las Vegas, NV – Hitachi GST

**b. Next Year's Planned Meetings (Dates and Locations)**

#45	Feb 24-26, 2004	Santa Clara, CA – nVidia
#46	Apr 20-22, 2004	Longmont, CO - Seagate
#47	June 22-24, 2004	San Jose, CA – Phoenix
#48	Aug 24-26, 2004	Longmont, CO - Maxtor
#49	Oct 19-21, 2004	Las Vegas, NV – Fujitsu
#50	Dec 14-16, 2004	Las Vegas, NV – Hitachi GST

**7. Liaison Activities**

**Liaison Representatives from T13:**

	<b>Committee</b>	<b>Representative</b>
T10	NCITS Technical Committee T10	D. Colegrove
SFF	SFF Committee	D. Colegrove
IDEMA	International Disk Drive Equipment and Materials Association	D. Colegrove

Also see 2. Significant Accomplishments.

## 8. Membership and Officers

### a. Officers

Chair	Dan Colegrove – Hitachi GST
Vice-Chair	Jim Hatfield – Seagate Corporation
Secretary	Mark Overby – nVidia Corporation

### b. Membership

#### Status:

T13 has presently 19 voting member organizations: Absolute Software; Apple Computer, Inc.; Fujitsu Computer Products of America, Inc.; Hitachi Global Storage Technologies; IBM Corporation; Intel Corporation; LSI Logic; Maxtor Corporation; Microsoft Corporation; nVidia Corporation; Pacific Digital Corporation; Phoenix Technologies Limited; Qlogic Corporation; Seagate Technology; Silicon Image Corporation; ST Microelectronics; Toshiba Corporation; Emulux, and Western Digital Corporation.

Samsung Corporation will join in February.

## 9. Future Trends and Related Technical Activities

It is anticipated that a follow-on project providing enhancements to AT Attachment with Packet Interface - 7 (1532D) will be begun during 2004. The project will include the removal of the parallel ATA interface protocol. Additional features and functions to support the serial ATA interface will be incorporated. This major revision of the ATA/ATAPI standard is expected to take 12-18 months from project proposal to first public review.

The Serial Attached SCSI (SAS) architecture developed by TC T10 allows serial ATA protocol communications to be transported through a SAS network. T13 will continue a close liaison with T10 to insure compatibility of serial ATA devices in a SAS system.

## 10. Other Administrative Information

T13 does not collect or disburse funds.

I would like to recognize the exceptional contribution of the 1532D AT Attachment with Packet Interface -7 document editor, John Masiewicz, to the work of T13.

Daniel Colegrove – Chairman T13