

Project Proposal for A New Standard

1 Source of the Proposed Project

1.1 Title

Serial Storage Host Bus Adapter Standard

1.2 Date Submitted

February 2, 2004

1.3 Proposer(s)

T13

2 Process Description for the Proposed Project

2.1 Project Type (*Development or Revision*)

D

2.2 Type of Document

Standard

2.3 Definitions of Concepts and Special Terms

The terms are industry standard.

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

The standard addresses closed systems and has no relationship to INCITS Reference Models.

2.5 Recommended INCITS Development Technical Committee

T13

2.6 Anticipated Frequency and Duration of Meetings

T13 presently meets up to six times per year and authorizes ad hoc meetings as warranted for the needs of the projects. It is anticipated that these meetings are adequate to address this standard among the other agenda items for these meetings.

2.7 Target Date for Initial Public Review (*Milestone 4*)

August 2005

2.8 Estimated Useful Life of Standard or Technical Report

5 years or more

3 Business Case for Developing the Proposed Standard

3.1 Description

This project would generate a common, standard interface for host controllers that implement serial attachments for AT drives (as standardized in ATA/ATAPI-7 (Project 1532D)). This standard would define a mandatory feature set and register interface to access serially attached devices as well as optional feature sets that would allow the implementer to extend the functionality in a vendor specific manner without affecting base functionality.

It is also anticipated that this standard could be extended to other storage interfaces as an optional feature set. The standard will be designed to be flexible and forward looking to provide host-side software to implement new features as much as possible for new, and currently unforeseen, functionality.

In addition to implementing the required features of ATA/ATAPI-7, it is anticipated that this standard will incorporate materials from future ATA/ATAPI standards including suggestions or proposals from T13 committee members.

3.2 Existing Practice and the Need for a Standard or Technical Report

There currently exists no universal standard or document that conclusively describes a host bus adapter implementation that allows for a consistent implementation of all current and currently conceived features for serial based storage adapters. This prevents operating systems and their associated device drivers from having a consistent interface to program and access new and market-demanded features from attached storage devices. The scope of this standard is to include such definitions to provide a common interface to the serial storage bus, while allowing the hardware manufacturer to extend and innovate in the host controller silicon.

Providing a common interface greatly reduces time to market considerations and cross-platform compatibility for serial host bus adapters increasing the opportunities for the attach rate of serial devices to grow.

The interface conceived by this document will also provide a forward looking mechanism for software to access the bus in a direct manner to implement diagnostic, control, and new and currently unforeseen features with existing silicon. This allows for the greatest possible compatibility while allowing the silicon vendor to implement such new functionality in a hardware accelerated manner providing continuing growth for silicon development and maintaining maximum software compatibility.

3.3 Implementation Impacts of the Proposed Standard or Technical Report

3.3.1 Development Costs

Implementation costs are born on a voluntary basis by industry. Members of T13 have informed us that their companies consider the detailed costs to be confidential information. Although the members consider the cost details to be confidential, they also consider the ultimate costs to be reduced by the benefits of the standard.

3.3.2 Impact on Existing or Potential Markets

The standard proposed for the serial storage host bus adapter will not impact in a negative manner the existing legacy base of host controllers. However, it will provide a growth vehicle for software and hardware development of host controllers. In addition, it will provide a forward looking standard that can incorporate growth of the serial storage markets through new features or procedures.

3.3.3 Costs and Methods for Conformity Assessment

No formal conformity assessment is undertaken. However each hardware vendor and customer(s) have extensive qualification testing that the methods are exhaustively tested in the industry. In addition the standard will provide a basis for other industry conformance activities by various market vendors (hardware and software). The incremental cost is expected to be negligible to modest as much of the conformity infrastructure is already in place for many of the hardware / silicon designers.

3.3.4 Return on Investment

The estimated ROI for development of this standard and the conformity assessment costs associated with it greatly exceeds 1000 to 1.

3.4 Legal Considerations

3.4.1 Patent Assertions

T13 will make regular calls for patents in the meetings addressing the standard.

3.4.2 Dissemination of the Standard

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

4 Related Standards Activities

4.1 Existing Standards

PCI Specification Revision 2.3
PCI-Express Specification 1.0a
Serial ATA Extensions Specification

4.2 Related Standards Activity

d1532 (ATA/ATAPI-7)
(unassigned number) (ATA/ATAPI-8)
d1601 (SAS 1.1)

4.3 Recommendations for Coordinating Liaison

None

4.4 Recommendations for Close Liaison

TC T10
PCI Special Interest Group

5 Units of Measurement used in the Standard

The standard is not measurement sensitive.