T10/99-140r0

Project Proposal
For a New
NCITS Standard

SCSI Parallel Interface - 4

(SPI-4)

Physical & Protocol Layers

February 28, 1999

1. Source of the Proposed Project

1.1. Title: SCSI Parallel Interconnect - 4 (SPI-4)

1.2. Date Submitted: March 11, 1999

1.3. Proposer: T10, 8 members of T10 are also members of NCITS.

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.

This standard is expected to be used in closed systems.

2.5. Recommended NCITS Development Technical Committee:

T10

2.6. Anticipated Frequency and Duration of Meetings

Technical Committee T10 meets on a regularly scheduled basis (see www.symbios.com/t10 for the current meeting schedule). Specific task ad hoc groups are called as required between the regular meetings but their results are not binding.

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

November, 2000

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 Parallel Interface - 4 (SPI-4), is based on low-voltage differential (LVD) technology and is designed to provide a 320 MB/sec data rate and lay the groundwork for the next data rate, 640 MB/sec.

In addition to doubling the existing data rate of SPI-4 the following items are being considered for inclusion in SPI-4:

1) extended addressing for use with multi-segment busses.
2) adopt rules reducing frequency variation to allow for easier expander design.
3) consider flow control options to allow better operation with new serial interconnects.
4) improve domain validation.
5) incorporate micro-packet architecture for skew management.
6) improve physical layer signal integrity.
7) consideration of a unified CRC that improves serial interconnect options

The SPI-4 project will consider the advancing developments in silicon technology related to power management and voltage-reduction.

3.2. Existing Practice and the Need for a Standard:

The proposed project involves a compatible evolution of the present SCSI physical and protocol layers.

3.3. Implementation Impacts of the Proposed Standard:

3.3.1. Development Costs

Resources are provided by the members of T10. The members host the required meetings for development, provide for the necessary lab experiments and silicon technology development and provide the Technical Editor for the project. In addition some support is provided for the electronic means to conduct meetings by the SCSI Trade Association.

3.3.2. Impact on Existing or Potential Markets

The nature of the proposed project is to insure that SCSI has an upward, highly compatible growth path. This insures that current investments in parallel SCSI are provided with a stable managed migration path in the face of technological developments.

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 particpants and have for the most part been mainly an adjucnt of their normal development costs.

3.3.4. Return on Investment

3.4. Legal Considerations

3.4.1. Patent Assertions

Calls will be made to identify assertions of patent rights in accordance with the relevant NCITS, 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 NCITS, ANSI, or ISO/IEC>

4. Related Standards Activities:

4.1. Existing Standards:

BSR Number	Title	Project
X3.253-1995	SCSI-3 Parallel Interconnect	0855-M
X3.292-1997	SCSI-3 Interlocked Protocol	0856-D
X3.277-1996	SCSI-3 Fast-20	1071-M
X3.270:1996	SCSI-3 Architecture Model (SAM)	0994-M
X3.301-1998	SCSI Parallel Interface - 2	1142-D
	SCSI Enhanced Parallel Interface	1143-DT

4.2. Related Standards Activity:

BSR Number	Title	Project
X3.301	SCSI Parallel Interface - 3	1302-D
	SCSI Primary Commands - 2 (SPC-2)	1236-D
	SCSI Architecture Model - 2 (SAM-2)	1157-D

Corresponding ISO projects for:

BSR Number	Title	Project
X3.253-1995	SCSI-3 Parallel Interconnect	0855-M
X3.292-1997	SCSI-3 Interlocked Protocol	0856-D
X3.277-1996	SCSI-3 Fast-20	1071-M
X3.270:1996	SCSI-3 Architecture Model (SAM)	0994-M

4.3. Recommendations fro Coordinating Liaison:

None.

4.4. Recommendations for Close Liaison:

None.