



NCITS SUBGROUP ANNUAL REPORT

Annual Report for: **T10**
Covering the Period: April 1996 to March 1997
Title of NCITS Subgroup: Lower Level Interfaces
Informal Description of Work: T10 develops standards and technical reports on I/O interfaces, particularly the Small Computer System Interface (SCSI).

I. Executive Summary

T10 continues to run smoothly with 38 approved projects and one proposed project. Most of the active projects are related to the SCSI-3 family of standards. T10 membership has been stable over the last year and is at 52 organizations.

Work continues to progress in mapping SCSI command sets to three serial interfaces: Fibre Channel, SSA, and IEEE 1394. Also, there has been a renewed interest in parallel SCSI. This is mostly due to work on a new driver technology called Low-Voltage Differential (LVD). This work extends SCSI's maximum cable lengths and the maximum data rates supported with only a slight increase in costs.

The 10.1 task group, led by Chair Larry Lamers and Vice-Chair John Scheible, has nearly finished its work. The number of T10.1 meetings is expected to drop significantly. The first generation of SSA projects were completed *ahead of schedule* and the second generation projects are on schedule.

II. Projects

1. Interfaces Between Flexible Disks and Their Host Controllers

- a. Project 0052-M, Interfaces Between Flexible Disks and Their Host Controllers
- b. Target date for dpANS to NCITS: ?
Original target date:
Previous target date:
Current target date: Published
- c. Project Description: This is a maintenance project on ANSI/ISO/IEC 9315:[1994], which was previously identified as X3.80-1988, Interfaces Between Flexible Disks and Their Host Controllers.
- d. Publications during the past year: none.
- e. Statement of Progress or Accomplishments During Year: none.
- f. Statement of Status as of This Report: Maintenance Phase -- no activity.

*Operating under the procedures of The American National Standards Institute.

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- g. Future Plans: none.
- h. Reasons for Delay: none.

2. Storage Module Interfaces (SMD-E)

- a. Project 0053-RF Storage Module Interfaces (SMD-E)
- b. Target date for dpANS to NCITS: ?
 - Original target date:
 - Previous target date:
 - Current target date: Published--Reaffirmed: October 12, 1992
- c. Project Description: This is a maintenance project on X3.91-1992, Storage Module Interfaces.
- d. Publications during the past year: none.
- e. Statement of Progress or Accomplishments During Year: On September 12, 1996, T10 recommended that NCITS reaffirm this standard. The public review period passed without comment. The NCITS letter ballot to reaffirm passed March 10, 1997. This action should be at BSR in April 97.
- f. Statement of Status as of This Report: Maintenance Phase.
- g. Future Plans: none.
- h. Reasons for Delay: none.

3. Small Computer System Interface (SCSI-2)

- a. Project 0375-R, Small Computer System Interface (SCSI-2)
- b. Target date for dpANS to NCITS:
 - Original target date:
 - Previous target date:
 - Current target date: Maintenance Phase -- 5yr review due in 1999.
- c. Project Description: The SCSI protocol is designed to provide an efficient peer-to-peer I/O bus with up to 16 devices, including one or more hosts. Data may be transferred asynchronously at rates that only depend on device implementation and cable length. Synchronous data transfers are supported at rates up to 10 mega-transfers per second. With the 32-bit wide data transfer option, data rates of up to 40 megabytes per second are possible.

SCSI-2 includes command sets for magnetic and optical disks, tapes, printers, processors, CD-ROMs, scanners, medium changers, and communications devices.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: none.
- f. Statement of Status as of This Report: Maintenance Phase -- 5yr review due in 1999.
- g. Future Plans: none for SCSI-2; work continues on the SCSI-3 family of standards.
- h. Reasons for Delay: none.

4. **Device Level Interface for Streaming Cartridge and Cassette Tape Drives**

- a. Project 0378-M, Device Level Interface for Streaming Cartridge and Cassette Tape Drives
- b. Target date for dpANS to NCITS:
Original target date:
Previous target date:
Current target date: Published
- c. Project Description: This is a maintenance project on X3.146-1986 [R1992].
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: T10 has recommended that this standard be withdrawn. The public review period on withdrawal closes 29 April 97.
- f. Statement of Status as of This Report: In the process of withdrawing this standard.
- g. Future Plans: none.
- h. Reasons for Delay: none.

5. **Enhanced Small Device Interface (ESDI)**

- a. Project 0587-M, Enhanced Small Device Interface (ESDI)
- b. Target date for dpANS to NCITS:
Original target date:
Previous target date:
Current target date: Maintenance Phase -- 5yr review due in 1999.
- c. Project Description: This is a maintenance project on X3.170-1990[1994]/X3.170a-1991[1994].
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: none.
- f. Statement of Status as of This Report: Maintenance Phase -- 5yr review due in 1999.
- g. Future Plans: none.
- h. Reasons for Delay: none.

6. **SCSI Common Access Method (SCSI CAM)**

- a. Project 0792-M, SCSI Common Access Method (SCSI CAM)
- b. Target date for dpANS to NCITS:
Original target date:
Previous target date:
Current target date: Maintenance Phase -- 5yr review due in 2001.
- c. Project Description: This project defines a common method to access SCSI devices through a standard software interface to SCSI host adapters for several popular operating systems. This should result in simplified integration of products.

- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: ANSI X3.232-1996 published.
- f. Statement of Status as of This Report: Maintenance Phase.
- g. Future Plans: A CAM-3 project (0990-D) is in development phase.
- h. Reasons for Delay: none.

7. **SCSI-3 Parallel Interface (SPI)**

- a. Project 0855-D, SCSI-3 Parallel Interface (SPI)
- b. Target date for dpANS to NCITS:
 - Original target date:
 - Previous target date:
 - Current target date: Maintenance Phase -- 5yr review due in 2000.
- c. Project Description: The SCSI-3 Parallel Interface standard maintains a high degree of compatibility with SCSI-2 while providing documentation for new capabilities including an option to permit 16-bit data transfers on a single cable and expanded bus connectivity options to increase the maximum number of SCSI devices on a cable from 8 to 16 or more. This standard does not address areas above the physical level (such as protocol and command sets). This standard is used in conjunction with the command sets defined in SCSI-2 and/or subsequent versions of SCSI.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: T10 developed and began the approval process on Amendment #1 to SPI.
- f. Statement of Status as of This Report: SPI Amendment #1 is at first public review, which closes 29 April 97.
- g. Future Plans: A SPI-2 project is in development phase.
- h. Reasons for Delay: none.

8. **SCSI-3 Interlocked Protocol (SIP)**

- a. Project 0856-D, SCSI-3 Interlocked Protocol (SIP)
- b. Target date for dpANS to NCITS:
 - Original target date: April 1992
 - Previous target date: March 1996
 - Current target date: Maintenance Phase -- 5yr review due in 2002.
- c. Project Description: The SCSI-3 Interlocked Protocol standard maintains a high degree of compatibility with the equivalent functions in SCSI-2 while defining several new features and functions. The candidate new features are support of more than 8 devices and other evolutionary features. This standard is intended to be used in conjunction with the SCSI-3 Parallel Interface standard and the SCSI-3 command set standards.
- d. Publications During Past Year: none.

- e. Statement of Progress or Accomplishments During Year: ANSI X3.292-1997 was approved by BSR on March 12, 1997.
- f. Statement of Status as of This Report: At ANSI for publication.
- g. Future Plans: T10 plans to include future SIP work in the SPI-2 project (1142-D).
- h. Reasons for Delay: Previous project editors were overloaded and delays in SPI and SAM prevented progress on SIP. This project benefited enormously from a motivated project editor, George Penokie of IBM.

9. Serial Storage Architecture - Transport Layer - 1 (SSA-TL1)

- a. Project 0989-D, Serial Storage Architecture - Transport Layer (SSA-TL1)
- b. Target date for dpANS to NCITS:
 - Original target date: August 1996
 - Previous target date: March 1996
 - Current target date: Maintenance Phase -- 5yr review due in 2001.
- c. Project Description: The SSA-TL1 standard will define a transport layer that uses the SSA physical layer to transport the protocol above it. The goals of SSA-TL1 are: 1) minimize gate count. 2) define a web that supports frame multiplexing. 3) define flow control that allows a tradeoff between distance and data rate. and 4) define a full duplex transfer mechanism.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: ANSI X3.295-1996 was approved and published.
- f. Statement of Status as of This Report: Published.
- g. Future Plans: The SSA-TL2 (project 1147-D) is at NCITS for first public review.
- h. Reasons for Delay: Completed ahead of schedule.

10. Common Access Method - 3 (CAM-3)

- a. Project 0990-D, Common Access Method - 3 (CAM-3)
- b. Target date for dpANS to NCITS:
 - Original target date: July 1994
 - Previous target date: July 1996
 - Current target date: ?
- c. Project Description: This project is intended to revise and enhance the SCSI Common Access Method (CAM) such as adding 64-bit addressing and additional queuing modes.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: There has been almost no progress during the past year.
- f. Statement of Status as of This Report: A first draft was distributed a year ago. The shift to distributed email development appears to have failed. There is very little industry interest in this project except at Digital Equipment.

- g. Future Plans: none.
- h. Reasons for Delay: Lack of interest.

11. SCSI-3 Generic Packetized Protocol (GPP)

- a. Project 0991-DT, SCSI-3 Generic Packetized Protocol (GPP)
- b. Target date for dpANTR to NCITS:
 - Original target date: June 1993
 - Previous target date: March 1995
 - Current target date: ?
- c. Project Description: The Generic Packetized Protocol is intended to provide a protocol that can take advantage of multiple physical interfaces in a length-independent manner (i.e., a minimum number of packets per I/O Process). The Generic Packetized Protocol encapsulates the SCSI protocol, functions, commands, status, and data requiring minimal services from the physical interface. This project was converted from a Standards project to a Technical Report project about a year ago.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: GPP was registered as X3/TR-16-1996.
- f. Statement of Status as of This Report: Project complete, but not published yet; somehow this document was lost at ANSI or never sent there. We are now reviving this effort.
- g. Future Plans: none.
- h. Reasons for Delay: Controversy over the GPP scope.

12. SCSI-3 Serial Bus Protocol (SBP)

- a. Project 0992-D, SCSI-3 Serial Bus Protocol (SBP)
- b. Target date for dpANS to NCITS:
 - Original target date: February 1994
 - Previous target date: December 1994
 - Current target date: n/a
- c. Project Description: The Serial Bus Protocol is intended to provide a protocol that can take advantage of the capabilities provided by the High Performance Serial Bus (IEEE 1394) to support an efficient transport service for SCSI products.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: ANSI X3.268-1997 was approved by BSR on 2/6/97.
- f. Statement of Status as of This Report: T10 has recommended that NCITS take the necessary steps to withdraw this standard.
- g. Future Plans: SBP-2 (Project 1155-D) is in active development. The SCSI Transport *via* SBP-2 (STS) project was recently approved and is in development phase.
- h. Reasons for Delay: n/a

13. SCSI-3 Fibre Channel Protocol (FCP)

- a. Project 0993-D, SCSI-3 Fibre Channel Protocol (FCP)
- b. Target date for dpANS to NCITS:
Original target date: February 1994
Previous target date: December 1994
Current target date: Maintenance Phase -- 5yr review due in 2001.
- c. Project Description: The SCSI-3 Fibre Channel Protocol is intended to provide a protocol that can take advantage of the capabilities provided by the Fibre Channel physical layer to support an efficient, low-overhead transport service for SCSI products. The FCP is one of the protocols used in the FC-4 layer of Fibre Channel.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: BSR approved ANSI X3.269-1996 (FCP) on 4/8/96.
- f. Statement of Status as of This Report: Published.
- g. Future Plans: An FCP-2 project has been approved and is in development (Project 1144-D).
- h. Reasons for Delay: n/a

14. SCSI-3 Architecture Model (SAM)

- a. Project 0994-D, SCSI-3 Architecture Model (SAM)
- b. Target date for dpANS to NCITS:
Original target date: February 1994
Previous target date: December 1994
Current target date: Maintenance Phase -- 5yr review due in 2001.
- c. Project Description: The SCSI-3 Architecture Model defines the architecture of SCSI and provides a model for implementing several protocols on a variety of transport mechanisms. This standard will define a unifying framework for the implementation of SCSI.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: Published.
- f. Statement of Status as of This Report: BSR approved ANSI X3.270-1996 (SAM) on 4/8/96.
- g. Future Plans: An SAM-2 project has been approved and is in development (Project 1157-D).
- h. Reasons for Delay: n/a

15. SCSI-3 Primary Commands (SPC)

- a. Project 0995-D, SCSI-3 Primary Commands (SPC)
- b. Target date for dpANS to NCITS:
Original target date: June 1994
Previous target date: May 1996
Current target date: May 1996

- c. Project Description: The SPC is intended to provide a definition of those commands absolutely necessary to function in an SCSI environment plus those commands that are defined consistently for more than one command set. This command set will provide the means to identify the device type and hence identify which command set is appropriate for the device.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: Two public reviews were conducted with no comments received during the second public review.
- f. Statement of Status as of This Report: SPC Rev 11a is at NCITS for letter ballot approval – the ballot should close in May 1997.
- g. Future Plans: An SPC-2 project is in development phase {Project 1236-D}.
- h. Reasons for Delay: none.

16. SCSI-3 Block Commands (SBC)

- a. Project 0996-D, SCSI-3 Block Commands (SBC)
- b. Target date for dpANS to NCITS:
 - Original target date: June 1994
 - Previous target date: June 1996
 - Current target date: January 1997
- c. Project Description: The SCSI-3 Block Commands is intended to provide a complete set of commands to complement the SCSI-3 Primary Commands, and will be applicable to devices which transfer data in fixed block sizes (e.g., disk drives).
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: Development work was completed and SBC was forwarded to NCITS.
- f. Statement of Status as of This Report: SBC Rev 8 is at first public review, which closes 27 May 97.
- g. Future Plans: An SBC-2 project will likely be proposed.
- h. Reasons for Delay: Lack of project editor resources until Gene Milligan of Seagate volunteered.

17. SCSI-3 Stream Commands (SSC)

- a. Project 0997-D, SCSI-3 Stream Commands (SSC)
- b. Target date for dpANS to NCITS:
 - Original target date: June 1994
 - Previous target date: May 1996
 - Current target date: May 1997
- c. Project Description: The SCSI-3 Stream Commands is intended to provide a complete set of commands to complement the SCSI-3 Primary Commands, and be applicable to devices which transfer data in a streaming manner (e.g., tape drives).

- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: Development work was completed.
- f. Statement of Status as of This Report: SSC Rev 9 is at T10 letter ballot for forwarding to NCITS. The letter ballot closes 29 April 97.
- g. Future Plans: An SSC-2 project will likely be proposed.
- h. Reasons for Delay: Waiting on the other SCSI-3 command set documents to reach maturity.

18. SCSI-3 Graphic Commands (SGC)

- a. Project 0998-D, SCSI-3 Graphic Commands (SGC)
- b. Target date for dpANS to NCITS:
 - Original target date: June 1994
 - Previous target date: ???
 - Current target date: Project closed.
- c. Project Description: The SCSI-3 Graphic Commands is intended to provide a complete set of commands to complement the SCSI-3 Primary Commands, and be applicable to devices which transfer data from/to a visual representation to/from a computer.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: none.
- f. Statement of Status as of This Report: At T10's recommendation, NCITS closed this project.
- g. Future Plans: none.
- h. Reasons for Delay: Lack of interest.

19. SCSI-3 Medium Changer Commands (SMC)

- a. Project 0999-D, SCSI-3 Medium Changer Commands (SMC)
- b. Target date for dpANS to NCITS:
 - Original target date: June 1994
 - Previous target date: July 1996
 - Current target date: July 1997
- c. Project Description: The SCSI-3 Medium Changer Commands is intended to provide a complete set of commands to complement the SCSI-3 Primary Commands, and be applicable to devices which can relocate data from an inventory location to and from a device.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: Two revisions of the working draft were prepared.
- f. Statement of Status as of This Report: An T10 forwarding ballot is planned following the May 1996 meeting.
- g. Future Plans: none.

- h. Reasons for Delay: Waiting on the other SCSI-3 command set documents to reach maturity.

20. SCSI-3 Controller Commands (SCC)

- a. Project 1047-D, SCSI-3 Controller Commands (SCC)
- b. Target date for dpANS to NCITS:
 - Original target date: July 1995
 - Previous target date: February 1995
 - Current target date: n/a
- c. Project Description: The SCSI-3 Controller Commands standard is intended to provide a complete set of commands to complement the SCSI-3 Primary Command Set, and be applicable to devices which act as subsystem controllers, such as a disk array controllers.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: ANSI X3.268-1997 was approved by BSR on 2/6/97.
- f. Statement of Status as of This Report: SCC is at ANSI being published.
- g. Future Plans: An SCC-2 project is in development phase {Project 125-D}.
- h. Reasons for Delay: ANSI failed to issue the proper paperwork on this standard twice during 1996.

21. SCSI-3 Multimedia Commands (MMC)

- a. Project 1048-D, SCSI-3 Multimedia Commands (MMC)
- b. Target date for dpANS to NCITS:
 - Original target date: December 1994
 - Previous target date: July 1996
 - Current target date: September 1996
- c. Project Description: The SCSI-3 Multimedia Commands standard is intended to provide, in conjunction with the SCSI-3 Primary Commands (SPC), a complete set of commands for CD devices, while maintaining a high degree of compatibility with SCSI-2 compliant CD-ROM devices.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: Comments were received and addressed during first public review on this project resulting in substantive changes.
- f. Statement of Status as of This Report: Second public review is expected to start in May '97.
- g. Future Plans: An MMC-2 project is in development phase {Project 1228-D}.
- h. Reasons for Delay: none.

22. Serial Storage Architecture - SCSI-3 Protocol (SSA-S3P)

- a. Project 1051-D, Serial Storage Architecture - SCSI-3 Protocol (SSA-S3P)
- b. Target date for dpANS to NCITS:
 - Original target date: April 1997

- Previous target date: April 1997
Current target date: April 1997
- c. Project Description: The SSA-S3P standard will define a protocol that maps the SCSI-3 command sets onto the transport layer and physical interface. This standard will maintain compatibility with SCSI-3 and the SCSI-3 Architecture Model. The goals of SSA-S3P are: a) support for dual port and alternate paths; b) support for data field format extensions; c) support for auto-sense; d) support for third-party operations.
 - d. Publications During Past Year: none.
 - e. Statement of Progress or Accomplishments During Year: Development was completed and SSA-S3P was forwarded to NCITS for first public review.
 - f. Statement of Status as of This Report: At NCITS for first public review.
 - g. Future Plans: none.
 - h. Reasons for Delay: No delay -- on schedule.

23. SCSI-3 Fast-20 Parallel Interface (Fast-20)

- a. Project 1071-D, SCSI-3 Fast-20 Parallel Interface (Fast-20)
- b. Target date for dpANS to NCITS:
 - Original target date: November 1995
 - Previous target date: May 1995
 - Current target date: Maintenance Phase -- 5yr review due in 2001.
- c. Project Description: The Fast-20 standard is intended to document extensions to SPI to permit transfer rates of 20 mega-transfers per second, while maintaining a high degree of compatibility with SPI.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: ANSI X3.277-1996 (Fast-20) was approved by BSR on 4/18/96.
- f. Statement of Status as of This Report: Published.
- g. Future Plans: SPI-2 {Project 1142-D} is in development phase.
- h. Reasons for Delay: No delay.

24. Serial Storage Architecture - SCSI-2 Protocol (SSA-S2P)

- a. Project 1121-D, Serial Storage Architecture - SCSI-2 Protocol (SSA-S2P)
- b. Target date for dpANS to NCITS:
 - Original target date: June 1996 (before project was redefined)
 - Previous target date: August 1996
 - Current target date: Maintenance Phase -- 5yr review due in 2001.
- c. Project Description: The SSA-S2P standard will define a protocol that maps the SCSI-2 command sets onto the transport layer and physical interface. This standard will maintain compatibility with SCSI-2 to the extent possible in a serial environment. The goals of SSA-S2P are: a) provide an easy migration path to a serial interface; b) minimize the impact in converting

firmware in existing devices; c) provide an architected error recovery mode; d) improve performance by reducing command overhead; e) define the data field format; f) provide the support needed for concurrent I/O processing.

- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: ANSI X3.294-1996 was approved and published.
- f. Statement of Status as of This Report: Published.
- g. Future Plans: SSA-S3P (project 1051-D) is at NCITS for first public review.
- h. Reasons for Delay: Completed ahead of schedule.

25. SCSI Parallel Interface - 2 (SPI-2)

- a. Project 1142-D, SCSI Parallel Interface - 2 (SPI-2)
- b. Target date for dpANS to NCITS:
 - Original target date: July 1997
 - Previous target date: July 1997
 - Current target date: July 1998 (changed in revised project proposal)
- c. Project Description: The SPI-2 standard will define a physical and protocol layers that will support the SCSI-3 command sets above it, while maintaining a high degree of compatibility with the current SPI and SIP standards. Candidates for inclusion in the SPI-2 draft standard are: 1) definition of a new driver/receiver technology to increase data rates, enhance signal margins, enhance cable lengths, and increase device counts; 2) enhancements to the physical layer to reduce power consumption and to address emerging market for lower voltage devices; 3) Maintenance of the SCSI physical level standard that may result from further implementation of the SPI standard.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: In September 1996, T10 voted to stabilize the technical portions of SPI-2 Rev 11. T10 also voted to revise the project proposal to include the SCSI-3 Interlocked Protocol (SIP) within the project's scope. This revised project scope will permit the development of a single standard that deals with all aspects of the parallel SCSI physical and protocol layers.
- f. Statement of Status as of This Report: In development.
- g. Future Plans: none.
- h. Reasons for Delay: none.

26. SCSI Enhanced Parallel Interface Technical Report (EPI)

- a. Project 1143-D, SCSI Enhanced Parallel Interface Technical Report (EPI)
- b. Target date for dpANS to NCITS:
 - Original target date: May 1997
 - Previous target date: May 1997
 - Current target date: May 1998

- c. Project Description: This technical report will address complex physical configurations of parallel SCSI having one or more of the following features: a) mixed single-ended and differential devices on separate segments of the same logical bus; b) higher device count (e.g. > 16 devices); c) physical bus segments with branches to improve transmission line effects; d) extended physical bus segment lengths allowed by the propagation delay assumptions already built into the parallel SCSI protocol; e) removal and replacement of devices on active buses; f) removal, replacement, and addition of physical bus segments in active systems; g) mixed power conditions in active systems.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: Several revisions of the draft technical report were prepared.
- f. Statement of Status as of This Report: In development.
- g. Future Plans: none.
- h. Reasons for Delay: Priority was given to SPI-2 development.

27. SCSI Fibre Channel Protocol - 2 (FCP-2)

- a. Project 1144-D, SCSI Fibre Channel Protocol - 2 (FCP-2)
- b. Target date for dpANS to NCITS:
 - Original target date: November 1997
 - Previous target date: November 1997
 - Current target date: November 1997 (seems likely that this will not be met)
- c. Project Description: The FCP-2 standard will define a mapping layer for the execution of SCSI operations as defined by the SCSI-3 Architectural Model, ANSI X3.270-199X on the Fibre Channel - Physical and Signaling Interface as defined by ANSI X3.230-1994. It will maintain a high degree of compatibility with the present FCP standard. Candidates for inclusion in the FCP-2 draft standard include defining an optional response confirmation protocol for certain Fibre Channel Class 3 environments.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: Very little; not much has been identified beyond the present FCP standard.
- f. Statement of Status as of This Report: In development.
- g. Future Plans: none.
- h. Reasons for Delay: none.

28. Serial Storage Architecture - Physical Layer - 1 (SSA-PH1)

- a. Project 1145-D, Serial Storage Architecture - Physical Layer (SSA-PH1)
- b. Target date for dpANS to NCITS:
 - Original target date: June 1994
 - Previous target date: August 1996
 - Current target date: Maintenance Phase -- 5yr review due in 2001.

- c. Project Description: The SSA-PH1 standard will define a physical layer that will support the SSA transport layer and the protocol above it. The goals of SSA-PH1 are: a) minimize gate count; b) copper cable operation at 20MB/sec.; c) full duplex operation to achieve an aggregate 40MB/sec between two ports; d) connectors and cables sized for small form factor devices.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: ANSI X3.293-1996 was approved and published.
- f. Statement of Status as of This Report: Published.
- g. Future Plans: The SSA-PH2 (project 1146-D) is at NCITS for first public review.
- h. Reasons for Delay: Completed ahead of schedule.

29. Serial Storage Architecture - Physical Layer - 2 (SSA-PH2)

- a. Project 1146-D, Serial Storage Architecture - Physical Layer (SSA-PH2)
- b. Target date for dpANS to NCITS:
 - Original target date: April 1997
 - Previous target date: April 1997
 - Current target date: April 1997
- c. Project Description: The SSA-PH2 standard will define a physical layer that will support the SSA transport layer and the protocol above it. The goals of SSA-PH2 are: a) extend the cable distance; b) copper cable operation at 40MB/sec or greater; c) full duplex operation to achieve an aggregate 80MB/sec between two ports; and d) consider an optical transmission option.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: Development was completed and SSA-PH2 was forwarded to NCITS for first public review.
- f. Statement of Status as of This Report: At NCITS for first public review.
- g. Future Plans: none.
- h. Reasons for Delay: No delay -- on schedule.

30. Serial Storage Architecture - Transport Layer - 2 (SSA-TL2)

- a. Project 1147-D, Serial Storage Architecture - Transport Layer (SSA-TL2)
- b. Target date for dpANS to NCITS:
 - Original target date: April 1997
 - Previous target date: April 1997
 - Current target date: April 1997
- c. Project Description: The SSA-TL2 standard will define a transport layer that uses the SSA physical layer to support the protocol above it. The goals of SSA-TL2 are: a) provide support for an extended distance option in the physical layer; b) provide support for higher data rates in the physical layer; and c) enhance packet formats and addressing methods.
- d. Publications During Past Year: none.

- e. Statement of Progress or Accomplishments During Year: Development was completed and SSA-TL2 was forwarded to NCITS for first public review.
- f. Statement of Status as of This Report: At NCITS for first public review.
- g. Future Plans: none.
- h. Reasons for Delay: No delay -- on schedule.

31. **Boot Considerations for Devices Greater than 8 GBytes Technical Report**

- a. Project 1154-DT, Boot Considerations for Devices Greater than 8 GBytes Technical Report
- b. Target date for dpANTR to NCITS:
 - Original target date: March 1996
 - Previous target date: July 1996
 - Current target date: never
- c. Project Description: The traditional personal computer firmware mechanism for accessing files on a hard disk has an intrinsic limit of 8 GByte total disk capacity. SCSI disks are now available that exceed 8GByte, and similar ATA drives will be available in the near future. There has been considerable confusion over how to deal with this situation. T10 has addressed this question and feels that the industry would be well served by a document describing the current limitation and a recommended solution..
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: none.
- f. Statement of Status as of This Report: At T10's recommendation, NCITS closed this project..
- g. Future Plans: none.
- h. Reasons for Delay: Lack of resources to do the editorial work and a similar project is near completion in T13.

32. **SCSI Serial Bus Protocol 2 (SBP-2)**

- a. Project 1155-D, SCSI Serial Bus Protocol 2 (SBP-2)
- b. Target date for dpANS to NCITS:
 - Original target date: November 1997
 - Previous target date: November 1997
 - Current target date: November 1997

- c. **Project Description:** The SBP-2 standard will define transport layer protocols to take advantage of the continued evolution of the High Performance Serial Bus, IEEE Std 1394-1995. Candidates for inclusion in the SBP-2 draft standard are: a) define a transport protocol that is independent of the command set, b) develop functional specifications for SBP-2 high-availability factors, possibly in connection with yet to be defined extensions to High Performance Serial Bus transport media, c) provide functionality to incorporate the anticipated inclusion of gigabit and greater transfer rates by High Performance Serial Bus, d) insure SBP-2 compatibility for operations within a group of High Performance Serial Buses connected by bridges, e) provision of facilities to take advantage of the isochronous data transfer capabilities of High Performance Serial Bus, and f) other capabilities which fit within the general application scope of High Performance Serial Bus that may be proposed during the development phase by the participants in the project.
- d. **Publications During Past Year:** none.
- e. **Statement of Progress or Accomplishments During Year:** There has been tremendous interest in this project with very active development and frequent updates of the working draft. The project scope was revised in late 1996 to reduce the scope of SBP-2 and to introduce a companion project, SCSI Transport *via* SBP-2 {Project xxxx-D}
- f. **Statement of Status as of This Report:** In development.
- g. **Future Plans:** none.
- h. **Reasons for Delay:** none.

33. **SCSI Architecture Model - 2 (SAM-2)**

- a. Project 1157-D, SCSI Architecture Model - 2 (SAM-2)
- b. **Target date for dpANS to NCITS:**
 - Original target date: November 1997
 - Previous target date: November 1997
 - Current target date: November 1997
- c. **Project Description:** The SAM-2 standard will define an abstract layered model specifying those common characteristics of an SCSI I/O subsystem that must be exhibited by all SCSI protocols and implementations to insure compatibility with device drivers and applications regardless of underlying interconnect technology. SAM-2 will maintain a high degree of compatibility with the present SAM standard. Candidates for inclusion in the SAM-2 draft standard include extensions to support high availability requirements.
- d. **Publications During Past Year:** none.
- e. **Statement of Progress or Accomplishments During Year:** Two working drafts have been prepared.
- f. **Statement of Status as of This Report:** In development.
- g. **Future Plans:** none.
- h. **Reasons for Delay:** none.

34. **SCSI Enclosure Services (SES)**

- a. Project 1212-D, SCSI Enclosure Services (SES)

- b. Target date for dpANS to NCITS:
 Original target date: November 1997
 Previous target date:
 Current target date: January 1997
- c. Project Description: The SES standard will define a model for a SCSI Enclosure Services device type. The command set and command set usage will be described. Formats for providing different classes of information will be defined. Formats for providing status and control information for each element and type of element in an enclosure are defined. The SES standard will use commands defined in the SPC standard to transfer these formats. Additional formats are provided for other enclosure related information. If the committee requests and approves appropriate text, the SES standard may include additional enclosure related information, including MIB/MIFs for enclosure information.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: Development completed.
- f. Statement of Status as of This Report: At NCITS for first public review, which closes 29 April 97.
- g. Future Plans: none.
- h. Reasons for Delay: Forwarded ahead of schedule.

35. SCSI High Availability Profile (HAP)

- a. Project 1224-DT, SCSI High Availability Profile (HAP)
- b. Target date for dpANTR to NCITS:
 Original target date: May 1998
 Previous target date:
 Current target date: May 1998
- c. Project Description: Candidates for inclusion in the HAP technical report are: a) An interoperability profile for parallel SCSI components; b) System-level considerations for High Availability subsystems; c) Clarify the SCC description of the use of multi-LUN devices; d) Clarify device identification procedures in the case of multiple access paths; e) Identify characteristics needed for devices intended for use in high availability systems, including hardware, software, microcode, and device models; f) Document the process and procedures used to remove and replace device and host enclosures on a SCSI bus; g) Document the proper usage of "Y" cables, location of bus terminators, etc. as applicable to high availability systems; h) Document methods to avoid bus glitches on power cycles; i) Document when a bus reset may be used, when bus options are renegotiated, how to handle incoming bus resets, and the handling of message and command traffic when a host is running its boot or console code; j) Document when certain data needs to be maintained on a per-LUN or a per-host basis in a device; k) Establish guidelines for hosts in a multi-host environment to coordinate the use of mode pages, bus IDs, bus resets, and reservations; l) Clarification of the use of multiple internal controllers inside a SCSI device to provide internal protection against device failure.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: Four revisions of the working draft were prepared.
- f. Statement of Status as of This Report: In development.

- g. Future Plans: none.
- h. Reasons for Delay: none.

36. SCSI Controller Commands - 2 (SCC-2)

- a. Project 1225-D, SCSI Controller Commands (SCC-2)
- b. Target date for dpANS to NCITS:
 - Original target date: November 1997
 - Previous target date:
 - Current target date: November 1997
- c. Project Description: The SCSI Controller Commands-2 standard is intended to provide a complete set of commands to complement the SCSI-3 Primary Command Set, and be applicable to devices which act as subsystem controllers, such as a disk array controllers. Functions which will be considered for incorporation include: a) Transfer commands unique to SCC-2 devices; b) Control commands to manage the operation of an SCC-2 device; c) Optional device mapping and pass-through support; d) Other capabilities which fit within the general scope of implementing the SCSI Controller Commands-2 on a broad range of applications, and other capabilities that may be proposed during the development phase by the participants in the project.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: First working draft prepared.
- f. Statement of Status as of This Report: In development.
- g. Future Plans: none.
- h. Reasons for Delay: none.

37. Multi-Media Commands - 2 (MMC-2)

- a. Project 1228-D, Multi-Media Commands - 2 (MMC-2)
- b. Target date for dpANS to NCITS:
 - Original target date: March 1998
 - Previous target date:
 - Current target date: March 1998
- c. Project Description: The SCSI Multi-Media Commands-2 standard is intended to provide additional commands to existing Multi-Media Command Set, and be applicable to new devices being developed. Functions which will be considered for incorporation include: a) New Format commands unique to DVD, PD devices; b) Other capabilities which fit within the general scope of implementing the SCSI Multi-Media Commands-2 on a broad range of applications, and other capabilities that may be proposed during the development phase by the participants in the project.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: First working draft prepared.
- f. Statement of Status as of This Report: In development.
- g. Future Plans: none.

- h. Reasons for Delay: none.

38. SCSI Primary Commands - 2 (SPC-2)

- a. Project 1236-D, SCSI Primary Commands - 2 (SPC-2)
- b. Target date for dpANS to NCITS:
 Original target date: July 1998
 Previous target date:
 Current target date: July 1998
- c. Project Description: The SCSI Primary Commands-2 standard is intended to include additional commands as well as existing SCSI-3 Primary Commands, and be applicable to both existing and new SCSI device types being developed. The participants in the project may decide to move some information in SCSI-3 Primary Commands to another standard or to make some information in SCSI-3 Primary Commands obsolete in SCSI Primary Commands-2. In addition to the information currently in SCSI-3 Primary Commands, information that will be considered for incorporation include: a) New additional sense code values; b) New mode page definitions or new fields in existing mode pages; c) New fields in the parameter data returned by the INQUIRY and REQUEST SENSE commands; d) New vital product data pages; e) New commands appropriate for all SCSI device types; f) Changes to the processor device type model; and g) Other capabilities that fit within the general scope of implementing the SPC-2 on a broad range of applications, and other capabilities that may be proposed during the development phase by the participants in the project.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: The Project Editor is converting the SPC draft standard from Word Perfect to Framemaker.
- f. Statement of Status as of This Report: In development.
- g. Future Plans: none.
- h. Reasons for Delay: none.

39. SCSI Transport *via* SBP-2 (STS)

- a. Project 1240-D, SCSI Transport *via* SBP-2 (STS)
- b. Target date for dpANS to NCITS:
 Original target date: November 1997
 Previous target date:
 Current target date: November 1997
- c. Project Description: The SCSI-3 Transport *via* SBP-2 standard will map services required by SAM to the facilities provided by SBP-2. The SBP-2 proposed standard shall conform to the requirements of the SCSI-3 Architecture Model proposed standard but may also provide extensions (e.g., isochronous services) that are beyond the scope of the SCSI-3 Architecture Model.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: A first working draft was prepared.
- f. Statement of Status as of This Report: In development.

- g. Future Plans: none.
- h. Reasons for Delay: none.

40. SCSI Socket/SSL Services Command Set (SSS) {Project Proposal on OMC May 97 agenda}

- a. Project xxxx-D, SCSI Socket/SSL Services Command Set (SSS)
- b. Target date for dpANS to NCITS:
 - Original target date: July 1999
 - Previous target date:
 - Current target date: July 1999
- c. Project Description: The SSS standard will: a) define a platform and device independent method of communication between processor devices and communication devices or other devices; b) be optimized for platform/device independence; c) provide other capabilities which fit within the general application scope of the SCSI Socket/SSL Service that may be proposed during the development phase by the participants in the project.
- d. Publications During Past Year: none.
- e. Statement of Progress or Accomplishments During Year: none.
- f. Statement of Status as of This Report: Project Proposal on OMC May '97 agenda.
- g. Future Plans: none.
- h. Reasons for Delay: none.

III. Committee Activities

- a. Previous Year's Meetings:
 - May 9, 1996; Ft. Lauderdale, FL
 - July 18, 1996; Colorado Springs, CO
 - September 12, 1996; Natick, MA
 - November 7, 1996; Palm Springs, CA
 - January 9, 1997; Dallas, TX
 - March 13, 1997; San Diego, CA

Previous Year's Meetings T10.1:

 - May 1, 1996; South Burlington, VT
 - June 26, 1996; St. Petersburg Beach, FL
 - August 28, 1996; Ithaca, NY
 - October 30, 1996; Honolulu, HI
 - February 26, 1996; Austin, TX
- b. Current Year's Planned Meetings T10:
 - May 8, 1997; Natick, MA
 - July 17, 1997; Colorado Springs, CO
 - September 11, 1997; Nashua, NH
 - November 6, 1997; Palm Springs, CA
 - January 8, 1998; Dallas, TX (Location may change)
 - March 19, 1998; San Diego, CA

Current Year's Planned Meetings T10.1:

June 12, 1997, Seattle, WA

October 9, 1997, Tucson, AZ (This meeting will only happen if there is work to do.)

c.	Officers:	T10	T10.1
	Chair:	John B. Lohmeyer	Lawrence J. Lamers
	Vicechair:	Lawrence J. Lamers	John Scheible
	Secretary:	Ralph O. Weber	Lawrence J. Lamers

d. Membership: The current T10 and T10.1 membership lists are attached.

e. Liaison Activities: T11, T13, ISO/IEC JTC1/SC25/WG4, IEEE P1394.1, IEEE P1285.

f. Administrative Matters of Note: During the past year T10 has adopted electronic letter balloting, switched to publishing the mailing using portable document format (i.e., PDF) files, and provided web access over the internet for committee members. In addition, T10 has refined the use of reflectors to more effectively communicate with its members.

g. Procedural Matters of Note: The proposed SD-3 is causing a great deal of consternation among T10 members especially in the area of restricting access to draft standards.

h. Recommendations: Even though the secretariat is making advances in the electronic arena, there are still compatibility problems; most TCs use PCs while the Secretariat is using Macintoshes. This has resulted in some problems with file compatibility. NCITS should consider eliminating the floppy mailings and focus on keeping the NCITS web site updated.

IV. Anticipated Projects

It is anticipated that one or more projects will be needed for next-generation versions of current T10 projects as these projects near completion.

V. Future Trends in this Technical Area

The physical layer of parallel SCSI continues to take advantage of advances in silicon technology boosting transfer rates and connectivity. The trend to smaller connectors to accommodate wider data paths and smaller devices also impacts the physical layer.

The protocol layers for SCSI command sets continue to expand to encompass new physical layers being developed in other organizations. In addition, advances in parallel protocol are expected to occur in order to reduce overhead.

The SCSI command sets are evolving to encompass the latest developments in storage (e.g., digital video disks, CD recordable devices, and array controllers) as well as refinements to deal with current issues (e.g., power management and security).

In addition, command sets are being developed for storage enclosures and there is a proposal for a command set to provide secure socket services for SCSI interconnects.

Attachment 1: Committee Projects: SD-4 Data

The following data was provided by the NCITS Secretariat:

X3T10/SC25/WG4 Lower Level Interface

(Revised 04/08/97)

X3 Project: 52 - M

Std. Desig.: A/I 9315:1989 [1994]

Sold By: ANSI

Cost: 24.00 0.00

Title: Interfaces between flexible disk cartridges drives and their host controllers

Related International Development

ISO/IEC Doc.: IS 9315:1989

JTC 1 Project: 25.13.10.01

-

X3 Project: 53 - M

Std. Desig.: X3.91M:1987 [R1992]

Sold By: ANSI

Cost: 23.00 0.00

Title: Storage Module Interfaces (SMD-E)

Related International Development

ISO/IEC Doc.: IS 9324

JTC 1 Project: 25.13.10.03

X3 Project: 375 - M

Std. Desig.: X3.131:1994 []

Sold By: ANSI

Cost: 125.00 0.00

Title: Small Computer System Interface - 2 (SCSI-2)

Related International Development

ISO/IEC Doc.: IS 9316-1:1995

JTC 1 Project: 25.13.10.13

Std. Desig.: X3.131:1994/TIB-1:1995 []

Sold By: Global

Cost: 15.00 19.50

Title: ANSI X3.131:1994 Technical Information Bulletin 1

Related International Development

ISO/IEC Doc.: N/A
JTC 1 Project: _

Std. Desig.: X3.131:1994/TIB-2:1995 []
Sold By: Global

Cost: 15.00 19.50

Title: ANSI X3.131:1994 Technical Information Bulletin 2

Related International Development

ISO/IEC Doc.: N/A
JTC 1 Project: __

-
X3 Project: 378 - M

Std. Desig.: X3.146:1986 [R1992]

Cost: 26.00 0.00

Sold By: ANSI
Title: Streaming Cartridge and Cassette Tape Drives - Device-level Interface

Related International Development

ISO/IEC Doc.: N/A
JTC 1 Project: 25.13.10.05

X3 Project: 587 - M

Std. Desig.: X3.170:1989 [R1994]

Sold By: ANSI

Cost: 25.00 0.00

Title: Enhanced Small Device Interface (ESDI) (price includes supplement)

Related International Development

ISO/IEC Doc.: DIS 10222
JTC 1 Project: 25.13.10.12

Std. Desig.: X3.170A:1991 [R1994]
Sold By:

Cost: 0.00 0.00

Title: Addendum to ANSI X3.170-1989, Enhanced Small Device Interface (ESDI)

Related International Development

ISO/IEC Doc.: N/A
JTC 1 Project: 25.13.10.12

-
X3 Project: 792 - M

Std. Desig.: X3.232:1996 []

Sold By: ANSI

Cost: 95.00 0.00

Title: SCSI-2 Common Access Method Transport and SCSI Interface Module

Related International Development

ISO/IEC Doc.: N/A
JTC 1 Project: 25.13.11.02

X3 Project: 855 - D

Std. Desig.: : []
Sold By:

Cost: 0.00 0.00

Title: Amendment 1 to ANSI X3.253:1995, SCSI-3 Parallel Interface (SPI)

Related International Development

ISO/IEC Doc.: JTC 1 Project:

Std. Desig.: X3.253:1995 []

Sold By: Global

Cost: 35.00 45.50

Title: SCSI-3 Parallel Interface (SPI)

Related International Development

ISO/IEC Doc.: JTC1 N 3913

JTC 1 Project: 25.13.11.05

-

X3 Project: 856 - D

Std. Desig.: X3.292:1997 []

Sold By:

Cost: 0.00 0.00

Title: SCSI-3 Interlocked Protocol (SIP)

Related International Development

ISO/IEC Doc.: N/A

JTC 1 Project: 25.13.11.04

X3 Project: 990 - D

Std. Desig.: : []

Sold By:

Cost: 0.00 0.00

Title: Common Access Method-3 (CAM-3)

Related International Development

ISO/IEC Doc.: N/A

JTC 1 Project: N/A

-

X3 Project: 991 - DT

Std. Desig.: X3/TR-16: []

Sold By: Global

Cost: 65.00 78.00

Title: Technical Report for Generic Packetized Protocol (GPP)

Related International Development

ISO/IEC Doc.: N/A
JTC 1 Project: 25.13.11.06

X3 Project: 992 - D

Std. Desig.: X3.268:1997 []
Sold By: ANSI

Cost: 58.00 0.00

Title: SCSI-3 Serial Bus Protocol (SBP)

Related International Development

ISO/IEC Doc.: JTC1 N 3914
JTC 1 Project: 25.13.11.07

-

X3 Project: 993 - M

Std. Desig.: X3.269:1996 []

Sold By: ANSI

Cost: 65.00 0.00

Title: SCSI-3 Fibre Channel Protocol (FCP)

Related International Development

ISO/IEC Doc.: JTC1 N 3917
JTC 1 Project: 25.13.13.02

X3 Project: 994 - M

Std. Desig.: X3.270:1996 []
Sold By: Global

Cost: 35.00 45.50

Title: SCSI-3 Architecture Model (SAM)

Related International Development

ISO/IEC Doc.: JTC1 N 3929
JTC 1 Project: N/A

-

X3 Project: 995 - D

Std. Desig.: X3.301: []

Sold By: Global

Cost: 50.00 65.00

Title: SCSI-3 Primary Commands (SPC)

Related International Development

ISO/IEC Doc.: N/A

JTC 1 Project: N/A

-

X3 Project: 996 - D

Std. Desig.: NCITS 306: []

Sold By:

Cost: 0.00 0.00

Title: SCSI-3 Block Commands (SBC)

Related International Development

ISO/IEC Doc.: N/A

JTC 1 Project: N/A

X3 Project: 997 - D

Std. Desig.: : []

Sold By: Global

Cost: 35.00 45.50

Title: SCSI-3 Stream Commands (SSC)

Related International Development

ISO/IEC Doc.: N/A

JTC 1 Project: N/A

-

X3 Project: 999 - D

Std. Desig.: : []
Sold By: Global

Cost: 35.00 45.50

Title: SCSI-3 Medium Changer Commands (SMC)

Related International Development

ISO/IEC Doc.: N/A
JTC 1 Project: N/A

-
X3 Project: 1047 - D

Std. Desig.: X3.276:1997 []

Sold By: ANSI

Cost: 110.00 0.00

Title: SCSI-3 Controller Commands (SCC)

Related International Development

ISO/IEC Doc.: JTC1 N 3916
JTC 1 Project: N/A

X3 Project: 1048 - D

Std. Desig.: X3.304: []
Sold By: Global

Cost: 35.00 45.50

Title: SCSI-3 Multimedia Commands (MMC)

Related International Development

ISO/IEC Doc.: N/A
JTC 1 Project: N/A

-
X3 Project: 1071 - M

Std. Desig.: X3.277:1996 []
Sold By: ANSI

Cost: 28.00 0.00

Title: SCSI-3 Fast-20 Parallel Interface (Fast-20)

Related International Development

ISO/IEC Doc.: JTC1 N 3915

JTC 1 Project: N/A

-

X3 Project: 1142 - D

Std. Desig.: X3.302: []

Sold By:

Cost: 0.00 0.00

Title: SCSI-3 Parallel Interface - 2 (SPI-2)

Related International Development

ISO/IEC Doc.: JTC 1 Project:

X3 Project: 1143 - DT

Std. Desig.: : []

Sold By:

Cost: 0.00 0.00

Title: Technical Report for SCSI Enhanced Parallel Interface (EPI)

Related International Development

ISO/IEC Doc.: JTC 1 Project:

-

X3 Project: 1144 - D

Std. Desig.: : []

Sold By:

Cost: 0.00 0.00

Title: SCSI Fibre Channel Protocol - 2 (FCP-2)

Related International Development

ISO/IEC Doc.: JTC 1 Project:

-

X3 Project: 1155 - D

Std. Desig.: : []

Sold By:

Cost: 0.00 0.00

Title: SCSI-3 Serial Bus Protocol 2 (SBP-2)

Related International Development

ISO/IEC Doc.: JTC 1 Project:

X3 Project: 1157 - D

Std. Desig.: : []

Sold By:

Cost: 0.00 0.00

Title: SCSI Architecture Model-2 (SAM-2)

Related International Development

ISO/IEC Doc.: JTC 1 Project:

-

X3 Project: 1212 - D

Std. Desig.: NCITS 305: []

Sold By:

Cost: 0.00 0.00

Title: SCSI Enclosure Services (SES)

Related International Development

ISO/IEC Doc.: JTC 1 Project:

-

X3 Project: 1224 - DT

Std. Desig.: : []

Sold By:

Cost: 0.00 0.00

Title: SCSI High Availability Profile (HAP) Technical Report

Related International Development

ISO/IEC Doc.: JTC 1 Project:

X3 Project: 1225 - D

Std. Desig.: : []

Sold By:

Cost: 0.00 0.00

Title: SCSI Controller Commands - 2 (SCC-2)

Related International Development

ISO/IEC Doc.: JTC 1 Project:

-

X3 Project: 1228 - D

Std. Desig.: : []

Sold By:

Cost: 0.00 0.00

Title: SCSI Multi-Media Commands - 2 (MMC-2)

Related International Development

ISO/IEC Doc.: JTC 1 Project:

-

X3 Project: 1236 - D

Std. Desig.: : []

Sold By:

Cost: 0.00 0.00

Title: SCSI Primary Commands - 2 (SPC-2)

Related International Development

ISO/IEC Doc.: JTC 1 Project:

X3 Project: 1240 - D

Std. Desig.: : []

Sold By:

Cost: 0.00 0.00

Title: SCSI-3 Transport via SBP-2 (STS)

Related International Development

ISO/IEC Doc.: JTC 1 Project:

X3T10.1/SC25/WG4 Serial Storage Architecture

(Revised 04/08/97)

X3 Project: 989 - D

Std. Desig.: X3.295:1996 []

Sold By: ANSI

Cost: 80.00 0.00

Title: Serial Storage Architecture - Transport Layer (SSA-TP1)

Related International Development

ISO/IEC Doc.: N/A

JTC 1 Project: N/A

-
X3 Project: 1051 - D

Std. Desig.: NCITS 309: []

Sold By:

Cost: 0.00 0.00

Title: Serial Storage Architecture - SCSI-3 Protocol (SSA-S3P)

Related International Development

ISO/IEC Doc.: N/A
JTC 1 Project: N/A

X3 Project: 1121 - D

Std. Desig.: X3.294:1996 []
Sold By: ANSI

Cost: 52.00 0.00

Title: Serial Storage Architecture - SCSI-2 Protocol (SSA-S2P)

Related International Development

ISO/IEC Doc.: N/A
JTC 1 Project: N/A

-

X3 Project: 1145 - D

Std. Desig.: X3.293:1996 []
Sold By: ANSI

Cost: 75.00 0.00

Title: Serial Storage Architecture - Physical Layer 1 (SSA-PH1)

Related International Development

ISO/IEC Doc.: JTC 1 Project:

-

X3 Project: 1146 - D

Std. Desig.: NCITS 307: []

Sold By:

Cost: 0.00 0.00

Title: Serial Storage Architecture - Physical Layer 2 (SSA-PH2)

Related International Development

ISO/IEC Doc.: JTC 1 Project:

X3 Project: 1147 - D

Std. Desig.: NCITS 308: []
Sold By:

Cost: 0.00 0.00

Title: Serial Storage Architecture - Transport Layer 2 (SSA-TL2)

Related International Development

ISO/IEC Doc.: JTC 1 Project:

Attachment 2: Internal Procedures**Procedure for Funding T10 Technical Editors**

Abstract: The volume of work in T10 exceeds the capacity and capabilities of volunteer technical editors. This procedure provides funding for paid editors to support the development and publication efforts within T10. The necessary funds (Editors Fund) is collected by adding a nominal surcharge to the mailing subscription fee. Funds are distributed to the paid editors by the NCITS Secretariat upon approval of an invoice by T10.

Enactment: This procedure shall be enacted upon approval by X3T9.2 and X3T9 (which they did in late 1992; T10 voted to carry the procedure over to T10). Upon enactment, the NCITS Secretariat shall establish accounting procedures to collect and administer the Editor Fund.

Funds Collection: The Editors Fund shall be maintained by the NCITS Secretariat. A surcharge of \$50.00 shall be added to the T10 Mailing Subscription Fee. The funds collected from this surcharge shall be accumulated in the Editors Fund. Moneys remaining in the Editors Fund at the end of the year shall be rolled over into the Editors Fund for the next year. T10 may adjust the amount of the surcharge to the Mailing Subscription Fee from year to year to reflect anticipated editing workload.

Funds Accounting: The NCITS Secretariat shall report that status of the Editors Fund to T10 annually and whenever the NCITS Secretariat receives an invoice for editing work.

Funds Distribution: Upon receipt of a written invoice for editing work, the NCITS Secretariat shall notify the T10 Chair providing a copy of the invoice and the current balance in the Editors Fund. The T10 Chair shall either add an item to the agenda of the next T10 meeting or issue a letter ballot to authorize payment of the invoice. Upon T10 approval of the invoice, the T10 Chair shall notify the NCITS Secretariat of the approval and the NCITS Secretariat shall issue a check for payment of the invoice. T10 shall not authorize payment of an invoice which would exceed the balance in the Editors Fund.

Editing Authorization: T10 may contract editing work on approved projects as deemed appropriate by the Technical Committee providing such contract work does not exceed the funds available in the Editor Fund.

T10 Electronic Procedures

This document, upon approval, establishes a procedure for the T10 Technical Committee, its working groups and affiliated activities regarding the usage of electronic means for notification of meetings and conducting business.

A member is any principal, alternate, or observer as recorded in the T10 attendance database at the point in time that the notification is sent.

1. Means of notification and distribution

T10 meets its requirements for notification and distribution through the use of electronic means. Each member shall provide an e-mail address that is accessible through the internet.

The primary means of notification and distribution is the administrative reflector. Each member is responsible for providing their e-mail address to the chair of T10 for inclusion in the committee attendance database and inclusion on the administrative reflector. T10 members in good standing (i.e., have paid appropriate NCITS fees) shall be included on the administrative reflector.

2. Notification of meetings and tele-conferences

At least two weeks prior to the conducting of a meeting or tele-conference all members shall be notified of the event by posting a meeting notice to the appropriate technical reflector. It is recommended that the notice be sent at least three weeks prior to the event to allow time for transmission, holidays, weekends, and access to the medium.

The notification shall contain the date, time, location of the event. In addition a contact person shall be named and their telephone number provided for anyone desiring further information. The notification shall specify the subject of the meeting and contain a statement of the meeting objective or an agenda.

3. Electronic letter ballots

T10 routinely uses letter ballots in the conduct of its activities. Letter ballots will be sent to the administrative reflector. This transmission constitutes both transmittal of the letter ballots to the principal members and notification to the alternate members of the letter ballot. The letter ballot shall contain 1) any reference documents, or, 2) reference the appropriate committee mailing, or, 3) shall include the electronic location of any reference documents. In the latter case, the reference documents shall be made available electronically on an FTP, WWW, and BBS site.

4. Distribution of meetings minutes

The convenor of the meeting or tele-conference is required post minutes of the activity to the appropriate technical reflector within ten working days of the conclusion of the event. (The NCITS rules allow two weeks for the delivery of meeting minutes.) T10 plenary minutes shall be posted to the administrative reflector within ten working days of the conclusion of the meeting.

The minutes shall contain a list of participants, and sufficient detail that a member familiar with the activity can adequately informed of the progress made.

5. Distribution of documents

Documents sent to the technical reflector are considered to have met the two week rule for taking action if the posting date is at least two weeks prior to the start of the meeting. Any document so distributed shall have a native format version posted to the BBS or FTP site with a document number to be considered a valid proposal.

6. Reflectors and electronic sites

The current T10 administrative reflector is T10-members@symbios.com. One must join T10 and provide his/her email address to the T10 chair to join this reflector.

The current T10 technical reflector is scsi@symbios.com. This reflector is open to anyone and may be joined by sending email to majordomo@symbios.com with the following line in the message body:

subscribe scsi

The current BBS location is The SCSI BBS at 719-533-7950 and the current ftp site is ftp.symbios.com.

T10 Standards Development Policies and Procedures

(Please see T10/94-198 r3, attached as a separate file)

Attachment 3: T10 Current Membership List (Note: This is the attendance database, which may omit some people from the NCITS Secretariat's database of those people receiving mailings, particularly those people who have not attended a meeting.)

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