1.　　　　Identification of Proposed Project

1.1　　　Title:　　　　　　　SCSI-3 Controller Commands (SCC)

1.2　　　Proposer

This project is proposed by the X3T9 Technical Committee. For additional information, please contact John B. Lohmeyer, X3T9.2 Chair, at NCR Corporation, 1635 Aeroplaza Dr., Colorado Springs, CO 80916, (Phone: 719-573-3362 FAX: 719-597-8225) or Dal Allan, X3T9.2 Vice-Chair at ENDL, 14426 Black Walnut Ct., Saratoga, CA 95070 (Phone: 408-867-6630 Fax: 408-867-2115).

1.3　　　Date Submitted:　　　　October 1993 (X3T9.2 to X3T9)

1.4　　　Project Type:　　　　Development

2.　　　　Justification of Proposed Standard or Technical Report

2.1　　　Needs

The computer industry has developed a number of storage products that incorporate RAID (Redundant Array of Independent Devices) technology. While these products for the most part emulate disk devices, they require additional functions and features to permit efficient control of configuration and device management. Also, some of these storage products include functions to permit system control over activities associated with failed devices such as degraded mode operation and reconstruction. This proposed project would define a SCSI-3 command set for storage subsystem controllers.

2.2　　　Recommended Scope of Standard or Technical Report

The SCSI-3 Controller Commands 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 such as read and write.

b)　　　Control commands to manage the operation of a device.

c)　　　Optional device mapping and pass-through support.

d)　　　Other capabilities which fit within the general scope of implementing the SCSI-3 Controller Commands on a broad range of applications, and other capabilities that may be proposed during the development phase by the participants in the project.

2.3　　　Existing Practice in Area of Proposed Standard or Technical Report

Other efforts exist within X3T9.2 to broaden the application of SCSI.

2.4　　　Expected Stability of Proposed Standard or Technical Report with Respect to Current and Potential Technological Advance

The nature of the proposed project is to define the SCSI-3 Controller Commands in a manner which expands the alternatives available to host system manufacturers.

3.   Description of Proposed Project

3.1   Type of Document (Standard or Technical Report):   Standard

3.2   Definition of Concepts and Special Terms (if any):   none

3.3   Expected Relationship with Approved X3 Reference Models (e.g., DBMS, OSI)

The SCSI-3 Controller Commands are for use in closed systems.

3.4   Recommended Program of Work

The following program of work is planned for the SCSI-3 Controller Commands standard:

-       Solicit participation from present and future SCSI participants through X3T9.2 procedures and through press releases. Invite comments by end-user organizations and invite proposals from organizations that may have a contribution to a viable SCSI-3 Controller Commands standard.
-       Establish functional requirements for SCSI-3 Controller Commands functional additions.
-       Prepare a draft standard based on proposals submitted and other information gathered during the initial investigation.
-       Consider the results of SCSI-3 Controller Commands testing as may be available to the committee through the voluntary efforts of the various participants in X3T9 and its assigned task group.
-       Submit the draft proposed standard to X3 for further processing.

3.5   Resources - Individuals and Organizations Competent in Subject Matter

The current membership of X3T9.2 includes representatives from all parts of the computer industry from semiconductor chip manufacturers to large mainframe system manufacturers as well as Government agencies. The members of X3T9.2 have expressed their desire to participate and cooperate in the development of this proposed standard.

There are sufficient resources to complete the development of this standard without delaying work on other standards.

3.6   Recommended X3 Development Technical Committees (Existing or New)

It is recommended that the development work be done in task group X3T9.2.

3.7   Anticipated Frequency and Duration of Meetings

Task group X3T9.2 meets for two days bi-monthly. Specific task ad hoc groups are called as may be required for one to three days between the regular meetings but their results are not binding.

3.8   Target Date for dpANS to X3 (Milestone 10):   July 1995

3.9   Estimated Useful Life of Standard or Technical Report

It is anticipated that this standard will have a life of over 10 years.

4.   Implementation Impacts

4.1   Impact on Existing User Practices and Investments

The proposed SCSI-3 Controller Commands standard will provide an upward growth path which complements existing practices and investments. It is likely that any isolated negative impacts would occur in any case through non-standard evolution or revolution.

4.2   Impact on Supplier Products and Support

The proposed SCSI-3 Controller Commands standard will provide an upward growth path which complements existing practices and investments. It is likely that any isolated negative impacts would occur in any case through non-standard evolution or revolution.

4.3   Techniques and Costs for Compliance Verification

The committee will consider the results of SCSI-3 Controller Commands testing as may be available to the committee through the voluntary efforts of the various participants in X3T9 and its assigned task group. With this method all costs are borne by the organizations of the various participants and have for the most part been mainly an adjunct of their normal development costs.

4.4   Legal Considerations

No new legal considerations are expected that are not already in accordance with accepted X3 patent policies.
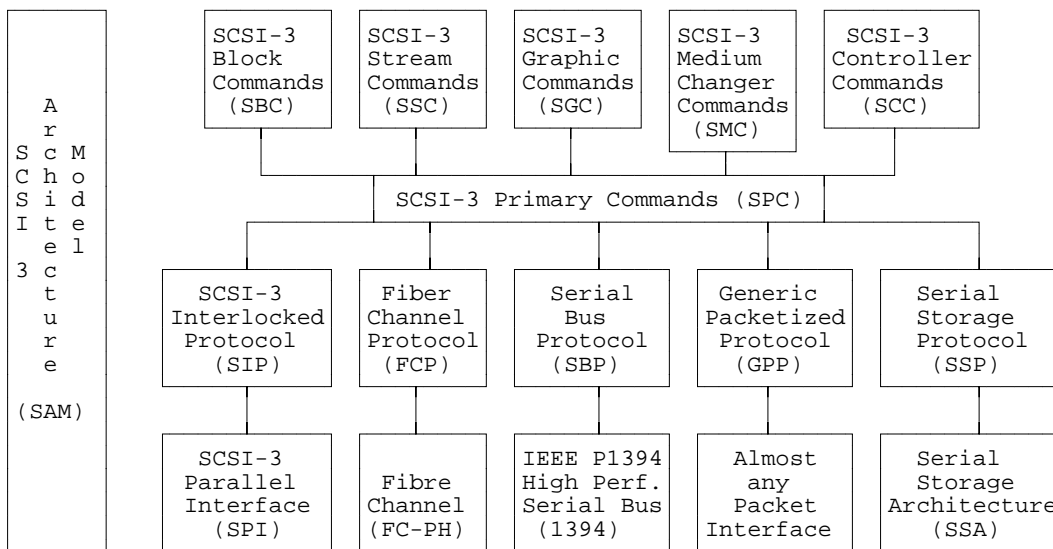
5.   Closely Related Standards Activities

The standardization of other SCSI-3 command sets is being done in X3T9.2 (see 5.2, below).

5.1   Existing Standards: none

5.2   X3 Standards Development Projects

The SCSI-3 Controller Commands is one part of the overall SCSI-3 family of standards:

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┌───────────┐  ┌─────────┐ ┌─────────┐ ┌─────────┐ ┌─────────┐ ┌───────────┐
│           │  │ SCSI-3  │ │ SCSI-3  │ │ SCSI-3  │ │ SCSI-3  │ │ SCSI-3    │
│           │  │ Block   │ │ Stream  │ │ Graphic │ │ Medium  │ │ Controller│
│           │  │Commands │ │Commands │ │Commands │ │ Changer │ │ Commands  │
│    A      │  │ (SBC)   │ │ (SSC)   │ │ (SGC)   │ │Commands │ │ (SCC)     │
│    r      │  └─────────┘ └─────────┘ └─────────┘ │ (SMC)   │ └───────────┘
│ S  c  M   │       │          │           │       └─────────┘      │
│ C  h  o   │       └──────────┼───────────┼───────────┼────────────┘
│ S  i  d   │                  │           │           │
│ I  t  e   │          ┌───────────────────────────────────────┐
│ 3  e  l   │          │ SCSI-3 Primary Commands (SPC)         │
│    c      │          └───────────────────────────────────────┘
│    t      │       ┌──────────┬───────────┬───────────┬────────────┐
│    u      │  ┌─────────┐ ┌─────────┐ ┌─────────┐ ┌─────────┐ ┌─────────┐
│    r      │  │ SCSI-3  │ │ Fiber   │ │ Serial  │ │ Generic │ │ Serial  │
│    e      │  │Interlock│ │ Channel │ │  Bus    │ │Packetizd│ │ Storage │
│           │  │Protocol │ │Protocol │ │Protocol │ │Protocol │ │Protocol │
│ (SAM)     │  │ (SIP)   │ │ (FCP)   │ │ (SBP)   │ │ (GPP)   │ │ (SSP)   │
│           │  └─────────┘ └─────────┘ └─────────┘ └─────────┘ └─────────┘
│           │       │          │           │           │            │
│           │  ┌─────────┐ ┌─────────┐ ┌─────────┐ ┌─────────┐ ┌──────────┐
│           │  │ SCSI-3  │ │         │ │IEEE P1394│ │ Almost │ │ Serial   │
│           │  │Parallel │ │ Fibre   │ │High Perf.│ │  any   │ │ Storage  │
│           │  │Interface│ │ Channel │ │Serial Bus│ │ Packet │ │Architectr│
│           │  │ (SPI)   │ │ (FC-PH) │ │ (1394)  │ │Interface│ │ (SSA)    │
└───────────┘  └─────────┘ └─────────┘ └─────────┘ └─────────┘ └──────────┘
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5.3   X3 Study Groups: none

5.4   Other Related Domestic Standards Efforts: none

5.5   ISO/IEC JTC 1 Standards Development Projects

It is anticipated that this standard will be proposed to JTC1/SC25/WG4.

5.6   Other Related International Standards Development Projects: none

5.7   Recommendations for Coordinating Liaison: none

5.8   Recommendations for Close Liaison: none