INTERNATIONAL STANDARD

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Information technology – Small computer system interface (SCSI) – Part 232: Serial Bus Protocol 2 (SBP-2)

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INFORMATION TECHNOLOGY – SMALL COMPUTER SYSTEM INTERFACE (SCSI) –

Part 232: Serial bus protocol 2 (SBP-2)

FOREWORD

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International Standard ISO/IEC 14776-232 was prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

Annexes A, B and C form an integral part of this International Standard.
Annexes D, E and F are for information only.

INFORMATION TECHNOLOGY – SMALL COMPUTER SYSTEM INTERFACE (SCSI) –

Part 232: Serial bus protocol 2 (SBP-2)

1 Scope and object

1.1 Scope

This part of ISO/IEC 14776 defines a protocol for the transport of commands and data over High Performance Serial Bus. The transport protocol, Serial Bus Protocol 2 or SBP-2, requires implementations to conform to the requirements of this standard as well as to ISO/IEC 13213:1994 and permits the exchange of commands, data and status between initiators and targets connected to Serial Bus.

1.2 Object

Original development work for Serial Bus Protocol (SBP) was initiated out of a desire to adapt SCSI capabilities and facilities to a particular serial environment IEEE 1394. Serial interconnects offer a migration path for SCSI into the future because they may be better suited to cost reduction and speed increases than the parallel interconnects first utilized by SCSI.

As development of the standard progressed, it became evident that the solutions provided by SBP-2 were of general applicability to large classes of Serial Bus peripheral devices. With this in mind, the development work was redirected to provide mechanisms for the delivery of commands, date and status independent of the command set or device class of the peripheral. SBP-2 provides a generic framework that may be referenced by other documents or standards that address the unique requirements of a particular class of devices. The enhanced goals set for the design of SBP-2 are ranked below:

– the protocol should permit the encapsulation of commands, data and status from a diversity of command sets, legacy as well as future, in order to preserve the investment in an existing application and operating system software base;

– the protocol should allow the initiator to dynamically add tasks to this set while the target is active in execution of earlier tasks. The addition of new tasks should not interfere with the target's processing of tasks currently active;

– although the protocol should enable varying levels of features and performance in target implementations, strong focus should be kept on a minimal set deemed adequate for entry-level environments;

– within the constraints posed by the preceding goal, the hardware and software design of the initiator should not be unduly affected by variations in target capabilities;

– in order to promote the scalability of aggregate system performance, the protocol should distribute the DMA context from the initiator adapter to the target devices.

Although SBP-2 has been designed for Serial Bus as currently specified by IEEE 1394, it is believed that it will be appropriate for use with future extensions to Serial Bus as they are standardized.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 9899:1999, *Programming Languages – C*

ISO/IEC 13213:1994, *Information technology – Microprocessor systems – Control and Status Register (CSR) Architecture for Microcomputer Buses*

ANSI/IEEE 1394:1995, *IEEE Standard for High Perfomance Serial Bus*

IEEE P1394a, *Draft Standard for High Perfomance Serial Bus (Supplement)*[1)]

BSR X3 PN 1157-D, *Information technology – SCSI Architecture Model 2 (SAM-2)*[2)]

BSR NCITS PN 1236-D, *Information technology – SCSI Primary Commands 2 (SPC-2)*[2)]

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1) Under development. Available from the Institute of Electrical and Electronics Engineers, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331

2) Under development. Available from the National Committee for Information Technology Standards, 1250 Eye Street, NW, Suite 200, Washington, DC 20005-3922