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Information technology – Small computer system interface (SCSI) –

Part 412: Architecture model-2 (SAM-2)

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FOREWORD

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International Standard ISO/IEC 14776-412 was prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

This International Standard has been approved by vote of the memeber bodies, and the voting results may be obtained from the address given on the title page.

INTRODUCTION

General

The set of SCSI standards consists of this International Standard and the SCSI implementation standards (see SCSI standards family).

The set of SCSI standards specifies the interfaces, functions and operations necessary to ensure interoperability between conforming SCSI implementations. This standard is a functional description. Conforming implementations may employ any design technique that does not violate interoperability.

SCSI standards family

Figure 1 shows the relationship of this standard to the other standards and related projects in the SCSI family standards.

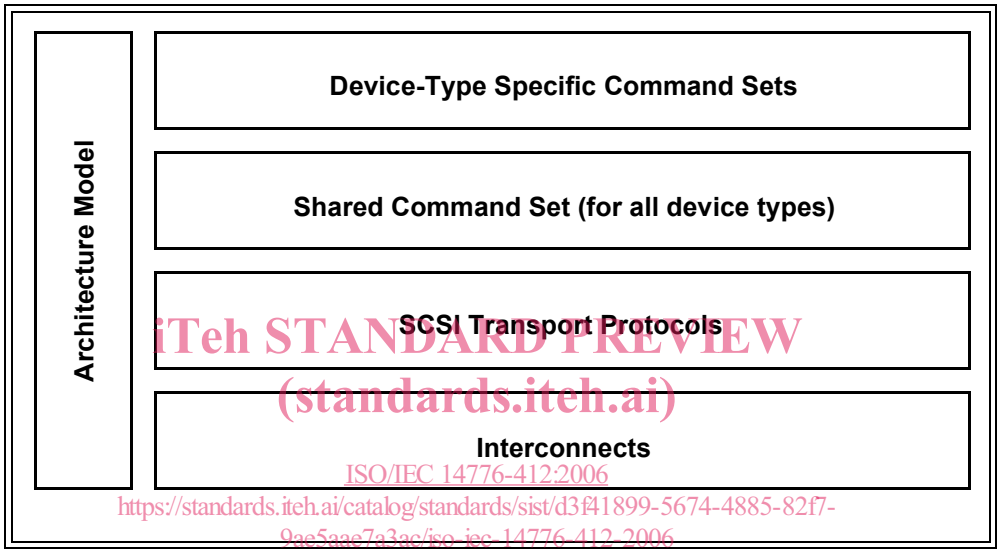

Figure 0 — SCSI document structure

Figure 0 shows the general applicability of the documents with respect to one another. Figure 0 does not imply a relationship such as a hierarchy, protocol stack or system architecture.

The functional areas identified in Figure 0 characterize the scope of standards within a group as follows:

Architecture Model: Defines the SCSI systems model, the functional partitioning of the SCSI standard set and requirements applicable to all SCSI implementations and implementation standards.

Device-Type Specific Command Sets: Implementation standards that define specific device types including a device model for each device type. These standards specify the required commands and behaviour that is specific to a given device type and prescribe the requirements to be followed by a SCSI initiator device when sending commands to a SCSI target device having the specific device type. The commands and behaviours for a specific device type may include reference commands and behaviours that are shared by all SCSI devices.

Shared Command Set: An implementation standard that defines a model for all SCSI device types. This standard specifies the required commands and behaviour that is common to all SCSI devices, regardless of device type, and prescribes the requirements to be followed by a SCSI initiator device when sending commands to any SCSI target device.

SCSI Transport Protocols: Implementation standards that define the requirements for exchanging information so that different SCSI devices are capable of communicating.

Interconnects: Implementation standards that define the communications mechanism employed by the SCSI transport protocols. These standards may describe the electrical and signaling requirements essential for SCSI devices to interoperate over a given interconnect.

For references, see bibliography.

The SCSI Architecture Model-2 (SAM-2) standard is divided into seven clauses and two annexes:

Clause 1	Scope
Clause 2	Normative references
Clause 3	Definitions, symbols and abbreviations
Clause 4	SCSI architecture model
Clause 5	SCSI command model of the SCSI architecture
Clause 6	Task management functions common to SCSI devices
Clause 7	Task set management capabilities common to SCSI devices
Annex A	Identifier and name definitions of the SCSI transport protocols
Annex B	Terminology mapping
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INFORMATION TECHNOLOGY - SMALL COMPUTER SYSTEM INTERFACE (SCSI) -

Part 412: Architecture Model - 2 (SAM-2)

1 General

1.1 Scope

This part of ISO/IEC 14776 defines a reference model that specifies common behaviours for SCSI devices and an abstract structure that is generic to all SCSI I/O system implementations.

This International Standard specifies generic requirements that pertain to SCSI implementation standards and implementation requirements.

1.2 Precedence requirements

An implementation requirement specifies behaviour in terms of measurable or observable parameters that apply to an implementation. Examples of implementation requirements defined in this International Standard are the command descriptor block format and the status values to be returned upon command completion.

Generic requirements are transformed to implementation requirements by an implementation standard. An example of a generic requirement is the hard reset behaviour specified in 5.9.6.

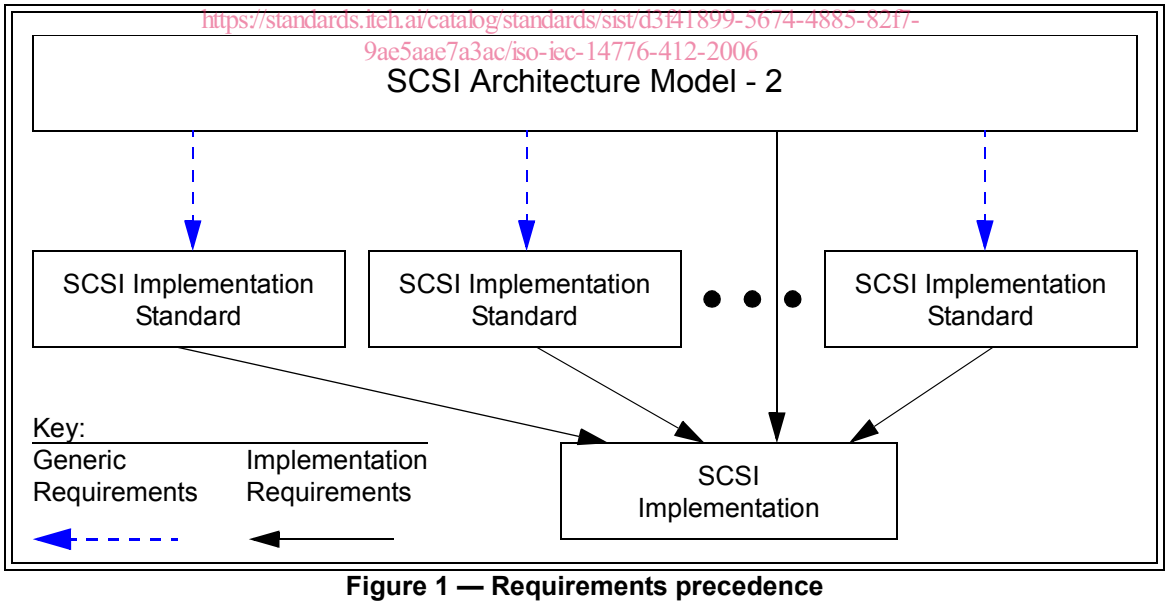

Figure 1 — Requirements precedence

As shown in figure 1, all SCSI implementation standards shall reflect the generic requirements defined herein. In addition, an implementation claiming SCSI compliance shall conform to the applicable implementation requirements defined in this standard and the appropriate SCSI implementation standards. In the event of a conflict between this document and other SCSI standards under the jurisdiction of ISO/IEC JTC 1/SC 25, the requirements of this standard shall apply.

2 Normative reference

The following referenced document is 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 14776-452, *Information technology – Small Computer System Interface (SCSI) – Part 452: Primary Commands-2 (SPC-2)*

For all other references, see bibliography.

3 Definitions, symbols, abbreviations and conventions

3.1 Definitions

For the purpose of this international standard the following definitions apply.

3.1.1
ACA command
command performed by a task with the ACA attribute (see 3.1.4, 4.10, and 7.5.4).

3.1.2
additional sense code
a combination of the ADDITIONAL SENSE CODE and ADDITIONAL SENSE CODE QUALIFIER fields in the sense data (see 3.1.104 and SPC-2)

3.1.3
application client
an object that is the source of SCSI commands

3.1.4
auto contingent allegiance (ACA)
one of the possible conditions of a task set following the return of a CHECK CONDITION status (see 5.9.1)

3.1.5
blocked task state
when in this state a task is prevented from completing due to a CA or ACA condition

3.1.6
blocking boundary
a task set boundary denoting a set of conditions that inhibit tasks outside the boundary from entering the enabled task state

3.1.7
byte
an 8-bit construct

3.1.8
call
act of invoking a procedure

3.1.9
client-server
relationship established between a pair of distributed entities where one (the client) requests the other (the server) to perform some operation or unit of work on the client's behalf.

3.1.10
client
entity that requests a service from a server

3.1.11
code value
defined numeric value, possibly a member of a series of defined numeric values, representing an identified and described instance or condition. Code values are defined to be used in a specific field (see 3.1.35), in a procedure input data parameter (see 3.6.2), in a procedure output data parameter, or in a procedure result

3.1.12
command
a request describing a unit of work to be performed by a device server