



Standard Guide for Hardware Implementation for Computerized Systems¹

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1. Scope

1.1 This guide provides assistance in the choice of computing hardware resources for ship and marine environments and describes:

1.1.1 The core characteristics of interoperable systems that can be incorporated into accepted concepts such as the Open System Interconnection (OSI) model;

1.1.2 Process-based models, such as the Technical Reference Model (TRM), that rely on interoperable computing hardware resources to provide the connection between the operator, network, application, and information; and,

1.1.3 The integrated architecture that can be used to meet minimum information processing requirements for ship and marine environments.

1.2 The use of models such as OSI and TRM provide a structured method for design and implementation of practical shipboard information processing systems and provides planners and architects with a roadmap that can be easily understood and conveyed to implementers. The use of such models permit functional capabilities to be embodied within concrete systems and equipment.

1.3 The information provided in this guide is understood to represent a set of concepts and technologies that have, over time, evolved into accepted standards that are proven in various functional applications. However, the one universal notion that still remains from the earliest days of information processing is that technological change is inevitable. Accordingly, the user of this guide must understand that such progress may rapidly invalidate or supersede the information contained herein. Nonetheless, the concept of implementing ship and marine computing systems based on these functional principles allows for logical and rational development and provides a sound process for eventual upgrade and improvement.

2. Referenced Documents

2.1 *ASTM Standards*:²

E1013 [Terminology Relating to Computerized Systems](#) (Withdrawn 2000)³

F1757 [Guide for Digital Communication Protocols for Computerized Systems](#)

2.2 *ANSI Standards*:⁴

X3.131 [Information Systems—Small Computer Systems Interface-2 \(SCSI-2\)](#)

X3.172 [American National Standard Dictionary for Information Systems](#)

X3.230 [Information Systems—Fibre Channel—Physical and Signaling Interface \(FC-PH\)](#)

X3.232 [Information Technology—SCSI-2 Common Access Method Transport and SCSI Interface Module](#)

X3.253 [Information Systems—SCSI-3 Parallel Interface \(SPI\)](#)

X3.269 [Information Technology—Fibre Channel Protocol for SCSI](#)

X3.270 [Information Technology—SCSI-3 Architecture Model \(SAM\)](#)

X3.276 [Information Technology—SCSI-3 Controller Commands \(SCC\)](#)

X3.277 [Information Technology—SCSI-3 Fast-20](#)

X3.292 [Information Technology—SCSI-3 Interlocked Protocol \(SIP\)](#)

X3.294 [Information Technology—Serial Storage Architecture—SCSI-2 Protocol \(SSA-S2P\)](#)

X3.297 [Information Systems—Fibre Channel—Physical and Signaling Interface-2 \(FC-PH2\)](#)

X3.301 [Information Technology—SCSI-3 Primary Commands \(SPC\)](#)

X3.304 [Information Technology—SCSI-3 Multimedia Commands \(MMC\)](#)

MS58 [Information Technology—Standard Recommended Practice for Implementation of Small Computer Systems](#)

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ The last approved version of this historical standard is referenced on www.astm.org.

⁴ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org/A>

¹ This guide is under the jurisdiction of ASTM Committee F25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.05 on Computer Applications.

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