

IEEE Standard for Boot (Initialization Configuration) Firmware: Bus Supplement for IEEE 896 (Futurebus+[®])

Sponsor
**Bus Architecture Standards Committee
of the
IEEE Computer Society**

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Abstract: Firmware is the read-only-memory (ROM)-based software that controls a computer between the time it is turned on and the time the primary operating system takes control of the machine. Firmware's responsibilities include testing and initializing the hardware, determining the hardware configuration, loading (or booting) the operating system, and providing interactive debugging facilities in case of faulty hardware or software. The core requirements and practices specified by IEEE Std 1275-1994 must be supplemented by system-specific requirements to form a complete specification for the firmware for a particular system. This standard establishes such additional requirements pertaining to the bus architecture defined by the IEEE Futurebus+[®] standards: ISO/IEC 10857 : 1994 [ANSI/IEEE Std 896.1, 1994 Edition], Information technology—Microprocessor systems—Futurebus+[®]—Logical protocol specification; and IEEE Std 896.2-1991, IEEE Standard for Futurebus+[®]—Physical Layer and Profile Specification.

Keywords: boot, configuration, debug, FCode, firmware, Forth, initialization, plug-in device, ROM

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Introduction

[This introduction is not a part of IEEE Std 1275.4–1995, IEEE Standard for Boot (Initialization Configuration) Firmware: Bus Supplement for IEEE 896 (Futurebus+®).]

Firmware is the ROM-based software that controls a computer between the time it is turned on and the time the primary operating system takes control of the machine. Firmware's responsibilities include testing and initializing the hardware, determining the hardware configuration, loading (or booting) the operating system, and providing interactive debugging facilities in case of faulty hardware or software.

Open Firmware is the firmware architecture defined by IEEE Std 1275–1994, IEEE Standard for Boot (Initialization Configuration) Firmware: Core Requirements and Practices. That standard is bus-independent, instruction-set-independent, and system-independent.

The core requirements and practices specified by IEEE Std 1275–1994 must be supplemented by system-specific requirements to form a complete specification for the firmware for a particular system. This standard establishes such additional requirements pertaining to the bus architecture defined by the IEEE Futurebus+ standards: ISO/IEC 10857: 1994 [ANSI/IEEE Std 896.1, 1994 Edition], Information technology—Microprocessor systems—Futurebus+®—Logical protocol specification; and IEEE Std 896.2-1991, IEEE Standard for Futurebus+®—Physical Layer and Profile Specification.

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1. Overview

This standard describes the application of IEEE Std 1274-1994, IEEE Standard for Boot (Initialization Configuration) Firmware: Core Requirements and Practices, to the bus defined by ISO/IEC 10857 : 1994.¹ This standard addresses both Futurebus+[®] monarch-capable devices that contain an IEEE 1275 FCode evaluator and Futurebus+ devices that are probed by such an evaluator.

2. References

This standard shall be used in conjunction with the following publications. When they are superseded by an approved revision, the revision shall apply:

IEEE Std 1275-1994, IEEE Standard for Boot (Initialization Configuration) Firmware: Core Requirements and Practices.²

IEEE Std 896.2-1991, IEEE Standard for Futurebus+[®]—Physical Layer and Profile Specification.

IEEE Std 896.2a-1994, IEEE Standard for Futurebus+[®]—Physical Layer and Profile Specification: Errata, Corrections, and Clarifications.

ISO/IEC 10857 : 1994, [ANSI/IEEE Std 896.1 1994 Edition], Information technology—Microprocessor systems—Futurebus+[®]—Logical protocol specification.

¹Information on references can be found in clause 2.

²IEEE publications are available from the Institute of Electrical and Electronics Engineers, Inc., 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331, USA.