First Edition (June1994)

This edition notice applies to *PowerOpen Application Binary Interface*.

The following paragraph does not apply to the United Kingdom or any country where such provisions are inconsistent with local law: POWEROPEN ASSOCIATION, INC. PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions; therefore, this statement may not apply to you.

This publication could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. POA may make improvements and/or changes in the product(s) and/or the programs(s) described in this publication at any time.

Requests for copies of this publication and for technical information about POA PowerOpen Evironment should be made to PowerOpen Association, Inc. Representative.

Trademarks and Acknowledgements

Preface

PowerOpen is an open system organization supported by some of the world's largest information systems suppliers, and software companies. Its mission is to bring to the users greater value from computing, through the portability application binary implementation of open system.

PowerOpen's strategy for achieving this goal is to combine existing and emerging standards into a comprehensive, integrated, usable system environment, called the PowerOpen Environment (POE). This environment covers the standards, above the hardware level, that are needed to support open systems. It provides for portability and interoperability of binary applications, and will allow users to move between PowerOpen systems with a minimum of retraining.

The components of the PowerOpen Environment are defined in this ABI document, and the documents that make up the PowerOpen Application Programming Interfaces (API), which significantly enhance portability of application programs at the binary level, and definitions of, and references to, protocols and protocol profiles, which significantly enhance the binary interoperability of applications.

The PowerOpen POE Specifications are supported by an extensive set of conformance tests and a distinct PowerOpen trademark — the PowerOpen brand — that is licensed by PowerOpen and may be carried only on products that comply with the PowerOpen specifications.

The PowerOpen brand, when associated with a vendor's product, communicates clearly and unambiguously to a procurer that the software and/or hardware bearing the brand correctly implements the corresponding PowerOpen POE Specifications. Users specifying PowerOpen-conformance in their procurements are therefore certain that the branded products they buy conform to the POE Specifications.

PowerOpen is primarily concerned with the selection and adoption of standards. The policy is to use formal approved *de jure* standards, where they exist, and to adopt widely supported *de facto* standards in other cases.

The *PowerOpen Application Binary Interface Standard* is comprised of this document and the Source Documents listed in this section. The PowerOpen ABI presents additional standard requirements for PowerPC Systems. The PowerOpen systems must conform to the standards listed in this section for application binary portability. The PowerOpen ABI specifies the portable system interfaces for users, software developers, and system administrators.

The appendices are a non-normative part of the ABI and are for additional information only.

Audience Description

Overall target audience: A broad range of system and applications programmers, including anyone writing programs that interface with the PowerOpen-branded system kernel.

Specific audiences include the following:

- Programmers who develop language processors for PowerOpen on different hardware architectures

- Programmers who need an application system interface that lets software access PowerOpen low-level kernel services

Applicability

PowerOpen Application Binary Interface (ABI) documentation presents information specifically for a Big-Endian 32-bit hardware implementation of the PowerPC architecture.

Purpose

The PowerOpen ABI specifies a binary interface to be used as a standard to ensure program compatibility on systems that implement a PowerOpen-branded operating system. The ABI defines a binary interface for programs that are compiled and packaged for PowerOpen implementations on different PowerPC hardware architecture implementations from different vendors.

Please report typographical errors, editorial changes, and technical comments or questions to:

PowerOpen Association, Inc.
Attn: Zdenek Radouch
25 Burlington Mail Road
Burlington, MA 01803
Internet z.radouch@poweropen.org
Tel 617−273−1550

Source Documents

The POE is based on existing standards and defined interfaces and refers to the following published documents for some of the functionality. As a general principle, use the following list for precedence (highest to lowest): International, Continental, Regional, Country, Government, Consortiums, Industry, Companies Standards.

- *ISO/IEC 646 : 1983, Information Processing − ISO 7-Bit Coded Character for Information Interchange*
- *ISO/IEC 8859−1 : 1987, Information Processing − ISO 8-bit Coded single−byte coded graphic character set − Part 1: Latin alphabet No. 1*
- *ISO/IEC 9899 : 1990, Information Processing − Programming languages − C*
  ANSI X3.159−1989 − American National Standard for Information Systems − Programming Language − C
  NIST FIPS 160
- *ISO/IEC 9945−1 : 1990 − Information Technology − Portable Operating System Interface (POSIX) − Part 1: System Application Program Interface (API) [C Language]*
  ANSI IEEE Std 1003.1−1990, American National Standard for Information technology − Portable Operating System Interface (POSIX) − Part 1: System Application Program Interface (API) [C Language]
  NIST FIPS 151−2
- *ISO/IEC 9945−2 : 1993 − Information Technology − Portable Operating System Interface (POSIX) − Part 2: Shell and Utilities*
  IEEE 1003.2 − 1993− Shell and Utilities
  NIST FIPS 152−1
- *OSF Application Environment Specification (AES)*
- *X/Open Portability Guide Issue 4*
  XPG4 Component Internationalised System Calls and Libraries
  XPG4 Component Commands and Utilities

XPG4 Component C Language
XPG4 Base Profile

- *PowerPC Architecture, First Edition*; IBM; May, 1993; customer reorder number 52G7487.
- *PowerPC 601 RISC Microprocessor User's Manual*; MOTOROLA ; 1993; MPC601UM/AD.
- *PowerOpen API, Application Programming Interface, Commands and Utilities*; PowerOpen; 1994.
- *PowerOpen API, Application Programming Interface, System Interfaces and Headers*; PowerOpen; 1994.

The PowerOpen ABI is based on existing standards for operating systems, programming languages, user interfaces, and networking.

Any conflict between this document and any of these standards is unintentional. This document defers to the formal standards, which PowerOpen recognizes as superior.

Typographic Conventions

The following typographic conventions apply to the PowerOpen ABI document:

Bold Command options, filenames, keywords, type names, data structures and their members, routines, fields, bits, headers, directory names directives, and system calls.

Italic Definitions, command operands, command option-arguments, variable names, environment variables, utility names, external variables, and functions.

`Constant width`
Syntax, code examples. A | (pipe) indicates different alternatives, and `...` (ellipses) mean more arguments are possible.

`Bold constant width`
Brackets that surround optional syntax and to identify system output in interactive examples.

`Italic constant width`
Variables in syntax statements.