PowerPC Platform: An Overview (3/97)

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TOPIC ----------

This article provides an overview of the PowerPC Platform (PPCP) (formerly known as CHRP).

DISCUSSION ----------

This information is taken from "PowerPC Microprocessor Common Hardware Reference Platform: A System Architecture", which is available from the PPCP Web Site:

http://chrp.apple.com/

What is PPCP?
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The PowerPC Platform (PPCP) architecture specification provides a comprehensive computer system hardware-to-software interface definition, combined with minimum system requirements, that enables the development of and software porting to a range of compatible industry-standard computer systems from portables through servers. These systems are based on the PowerPC microprocessor, as defined in The PowerPC Architecture. The definition supports the development of both uniprocessor and multiprocessor system implementations.

A key attribute and benefit of the architecture is the ability of hardware platform developers to have degrees of freedom of implementation below the level of architected interfaces and creating an opportunity for adding unique value. This flexibility is achieved through architecture facilities including:

- device drivers
- Open Firmware (OF)
- Run-Time Abstraction Services (RTAS)
- hardware abstraction layers.

Though the PowerPC microprocessor is the most widely used RISC processor,

substantial legacy software exists and a mechanism for running the bulk of this legacy software is a requirement. The system address map has been defined with a specific objective of assisting efficient x86 emulation. Additionally the PowerPC microprocessors support Bi-Endian operation which is a key attribute important to running the supported operating systems and applications. Bi-Endian capability is not available in the current IBM PC compatible x86-based system architecture.

The architecture combines leading-edge IBM PC and Apple Macintosh technologies to create a superior personal computing platform. By design, it supports a wide range of computing needs including personal productivity, engineering design, data management, information analysis, education, desktop publishing, multimedia, entertainment, and database, file, and application servers. The architecture effectively leverages industry-standard I/0 through the PCI bus while accommodating legacy I/0 from both the IBM PC compatible and the Apple Macintosh domains.

This approach provides several key benefits for system manufacturers and end customers:

• systems can be designed and manufactured to enable the customer a choice of operating system support

• smooth application, operating system and customer system transitions are enabled by accommodation for legacy software, I/0 devices, and peripherals.

This architecture helps protect the customer's investment while moving to more advanced portable, desktop and server computing platforms. Systems based on this architecture are expected to offer price/performance advantages and to address the expected growth in computing performance and functionality.

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