

Presenting Power Architecture Technology

The Power Architecture processing platform experiences rapid growth in unit shipments and software support.



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Power Architecture processing technology is the common thread

for a very broad range of computing devices, from 32-bit microcontrollers to 64-bit ASICs. It is also found in some of the most sophisticated FPGAs available today, including Xilinx® Virtex™-4 FX and Virtex-5 FXT FPGAs.

More than a billion Power Architecture-based chips have been built into electronic equipment since 1991, when the processing platform was first introduced as IBM's POWER (Performance Optimized With Enhanced RISC).

Every Power Architecture-based chip is rooted in the Power Instruction Set Architecture (ISA), a processing specification spanning server and embedded computing capabilities and incorporating the AltiVec vector (SIMD) processing extension. The Power ISA serves as the basis for future advancement of this highly successful processing platform.

Although the Power ISA name may be new to some, its features are familiar to thousands of software, hardware, and tool developers who have worked with PowerPC devices over the past 16 years. Power Architecture technology underlies many well-known chip families, including full-featured Virtex FPGAs from



Xilinx; the Cell Broadband Engine from IBM, Sony, and Toshiba; the PowerQUICC line of SOCs from Freescale; the POWER5 and POWER6 server chips from IBM; and, of course, hundreds of products from companies all over the world.

Silicon is just a small part of the complete technology platform: hundreds of companies provide Power Architecture

tools, software, systems, and services to speed up and simplify product development. In any given product category – from custom design services to real-time operating services – there are multiple providers from which to choose. The products and services these vendors offer are not only state-of-the-art but in many cases have also been refined by decades of experience in the marketplace.

Expanding Market Opportunities

The Power Architecture community's focus on improving customers' systems design experience, along with our product variety and vendor quality, has led to tremendous growth in the technology platform. Between 2005 and 2006, unit shipments for Power Architecture processors grew by 61%.

Today, Power Architecture processing technology is used in a huge variety of advanced electronics. For example, the world's two fastest supercomputers run Power Architecture processors, as do five of the world's 10 best-performing enterprise servers. Power Architecture controllers are in more than half the new cars on the road. Practically every phone call, e-mail, and Web page is delivered by equipment using Power Architecture microprocessors. Power Architecture devices are also pervasive in consumer game consoles, including the Microsoft Xbox 360, Nintendo Wii, and Sony PlayStation 3.

Looking forward, the communications infrastructure, automotive control, aerospace, and defense market segments will continue to be strongholds for Power Architecture technology. The consumer market – digital televisions, DVD players, set-top boxes, and particularly game consoles – will drive strong double-digit growth for Power Architecture devices through 2011. Xilinx Virtex FPGAs with PowerPC cores will remain a vital part of the Power Architecture portfolio for many of these major markets.

Enhancing Architecture Through Power.org

Dozens of influential companies providing chips, tools, software, services, and systems have joined together in Power.org to develop open specifications and standards for the Power Architecture platform. To simplify the development experience for system designers, Power.org's members will complete a number of projects and specifications this year:

- Searchable online product catalog covering almost all silicon, tools, software, and services offerings available for the Power Architecture technology platform
- Specifications establishing a common

set of hardware debugging interfaces for Power Architecture implementations

- Publication of consolidated application binary interface specifications for 32- and 64-bit Power Architecture implementations with neutral licensing that permits wide use and reference by customers, third parties, and other interested parties to support the development of tools, operating systems, and other platform technologies
- Platform requirements specification for embedded systems built on Power Architecture technology
- An open-source Hypervisor optimized for embedded systems
- New models and simulation specifications that support the construction of "virtual prototypes" with Power Architecture processors
- Technical training for Power Architecture products offered online through webinars or in person at our regional Power Architecture conferences in Europe and Asia

Conclusion

Power.org's open-community approach to managing Power Architecture technology has already resulted in many tangible benefits. For instance, in 2007, Power.org's members completed the Server Power Architecture Platform Reference (sPAPR), an open specification for streamlining the development of Power Architecture products for Linux. This specification, built on more than 20 IBM patents, was made available to corporate members of Power.org royalty-free. Along with this specification, a compliant reference design was also released based on IBM's 970MP processor. This was made available with a Linux stack, Hypervisor, and firmware.

By working together within Power.org, our member companies are continuing to improve the product design experience for our many shared customers and to expand business opportunities for the entire Power Architecture community.

For more information about Power.org, visit www.power.org.



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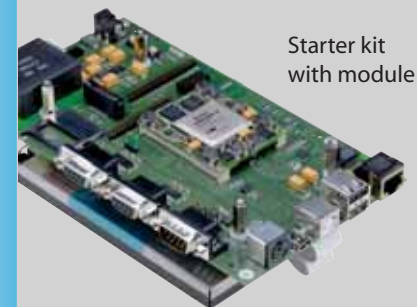
FPGA-Module: TQM hydraXC –

***smallest, most universal
Hardware Platform for
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- Based on XILINX Spartan 3, Virtex 4 and Virtex 5 technology
- Ethernet 10/100, USB 2.0, RTC
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- Size 2.13 Inch x 1.73 Inch (54 mm x 44 mm)
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TQM hydraXC for***

- Fast time to market
 - Economical series production
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