IBM, Sony and Toshiba Unveil Details of the Cell Microprocessor

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IBM, Sony Group and Toshiba today announced the release of key documents that describe technical details of the revolutionary Cell Broadband Engine architecture. The documents are available at www.ibm.com/developerworks/power/cell and cell.scei.co.jp. Toshiba will release the documents once it completes its customer support structure.

Today's announcement is the next major milestone in the Cell project, which began with the formation of the STI (Sony Group, Toshiba and IBM) Cell Design Center in Austin, Texas in March of 2001. High level technical specifications were released in much-anticipated papers delivered at San Francisco's International Solid State Circuit Conference (ISSCC) in February 2005.

By opening up a wide set of detailed technical specifications to software developers, business partners, academic and research organizations, and potential customers, IBM, Sony Group and Toshiba continue their work to aggressively stimulate the creation of Cell-based applications. The goal: establish a thriving community of interest and innovation around Cell, allowing all interested parties to rapidly evaluate and utilize Cell technology.

Specifically, the companies will make available documents describing the following components of the Cell microprocessor:

The Cell Broadband Engine Architecture -- defines a processor structure

directed toward distributed processing and multimedia applications. The architecture contains a control processor based on the Power Architecture, augmented with multiple high-performance SIMD Synergistic Processor Units and a rich set of DMA commands for efficient communications among processing elements.

The Synergistic Processor Unit Instruction Set Architecture (SPU ISA) -- discloses the high performance SIMD RISC processor designed to accelerate media and streaming applications for systems based upon the Cell Broadband Engine Architecture.

Synergistic Processor Unit C/C++ Language Extensions, Application Binary Interface, and Assembly Language specifications -- which aid software developers in unleashing the full processing power of the SPUs.

"IBM and its partners are committed to providing the development and open source communities with comprehensive, early access to the Cell Broadband Engine architecture and to encouraging those exploring the infinite possibilities of Cell," said Jim Kahle, IBM Fellow. "We strongly support an environment that removes virtually all barriers to building innovative applications based on Cell."

"We believe that the Cell architecture disclosure will allow more people to freely access the core technologies," said Masakazu Suzuoki, deputy senior vice president, Semiconductor Development Division, SCEI. "Through this we aim to firmly support software development technology in the mid to long term, particularly for middleware, and to accelerate the dissemination of Cell to stimulate the industry as a whole."

"The release of these technical documents is important for our customers, allowing them to see for themselves how the Cell Broadband Engine and its superb capabilities can support them in developing breakthrough applications," said Mitsuo Saito, chief fellow, Toshiba Corporation Semiconductor Company. "We will now reinforce our support for Cell with solution proposals based on combining Cell with

other resources we have developed, including the 'Super Companion Chip' dedicated peripheral LSI, software, reference sets and system development environment. These tools will allow our customers to create powerful, remarkable systems."