

**IBM**

**Sony Corporation**

**Sony Computer Entertainment Inc.**

**Toshiba Corporation**

**IBM, Sony, Sony Computer Entertainment Inc. and Toshiba Disclose Key Details of the Cell Chip**

*Innovative Design Features Eight Synergistic Cores Together with Power Based Core, Delivers More Than 10 Times the Performance of the Latest PC Processors*

**San Francisco, CA, February 7, 2005** – At the International Solid State Circuits Conference (ISSCC) today, IBM, Sony Corporation, Sony Computer Entertainment Inc. (Sony and Sony Computer Entertainment collectively referred to as Sony Group) and Toshiba Corporation (Toshiba) for the first time disclosed in detail the breakthrough multi-core architectural design – featuring supercomputer-like floating point performance with observed clock speeds greater than 4 GHz – of their jointly developed microprocessor code-named Cell.

A team of IBM, Sony Group and Toshiba engineers has collaborated on development of the Cell microprocessor at a joint design center established in Austin, Texas, since March 2001. The

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## 2-2-2-2 IBM, Sony, SCEI and Toshiba Disclose Key Details of the Cell Chip

prototype chip is 221 mm<sup>2</sup>, integrates 234 million transistors, and is fabricated with 90 nanometer SOI technology.

Cell's breakthrough multi-core architecture and ultra high-speed communications capabilities deliver vastly improved, real-time response for entertainment and rich media applications, in many cases 10 times the performance of the latest PC processors.

Effectively a "supercomputer on a chip" incorporating advanced multi-processing technologies used in IBM's sophisticated servers, Sony Group's computer entertainment systems and Toshiba's advanced semiconductor technology, Cell will become the broadband processor used for industrial applications to the new digital home.

Another advantage of Cell is to support multiple operating systems, such as conventional operating systems (including Linux), real-time operating systems for computer entertainment and consumer electronics applications as well as guest operating systems for specific applications, simultaneously.

Initial production of Cell microprocessors is expected to begin at IBM's 300mm wafer fabrication facility in East Fishkill, N.Y., followed by Sony Group's Nagasaki Fab, this year. IBM, Sony Group and Toshiba expect to promote Cell-based products including a broad range of industry-wide applications, from digital televisions to home servers to supercomputers.

Among the highlights of Cell released today:

- Cell is a breakthrough architectural design -- featuring eight synergistic processors and top clock speeds of greater than 4 GHz (as measured during initial hardware testing)
- Cell is a multicore chip capable of massive floating point processing
- Cell is OS neutral and supports multiple operating systems simultaneously

"Today's disclosure of the Cell chip's breakthrough architectural design is a significant milestone in an ambitious project that began four years ago with the creation of the IBM, Sony and Toshiba

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### 3-3-3-3 IBM, Sony, SCEI and Toshiba Disclose Key Details of the Cell Chip

design lab in Austin, Texas," said William Zeitler, senior vice president and group executive, IBM Systems and Technology Group. "Today we see the tangible results of our collaboration: an open, multi-core, microprocessor that portends a new era in graphics and multi-media performance."

"Today, we are very proud to share with you the first development of the Cell project, initiated with aspirations by the joint team of IBM, Sony Group and Toshiba in March 2001," said Ken Kutaragi, executive deputy president and COO, Sony Corporation, and president and Group CEO, Sony Computer Entertainment Inc. "With Cell opening a doorway, a new chapter in computer science is about to begin."

"We are proud that Cell, a revolutionary microprocessor with a brand new architecture that leapfrogs the performance of existing processors, has been created through a perfect synergy of IBM, Sony Group and Toshiba's capabilities and talented resources," said Masashi Muromachi, corporate vice president of Toshiba Corporation and president & CEO of Toshiba's Semiconductor Company. "We are confident that Cell will provide major momentum for the progress of digital convergence, as a core device sustaining a whole spectrum of advanced information-rich broadband applications, from consumer electronics, home entertainment through various industrial systems."

#### About IBM

IBM develops, manufactures and markets state-of-the-art semiconductor and interconnect technologies, products and services including industry-leading Power Architecture microprocessors. IBM semiconductors are a major contributor to the company's position as the world's largest information technology company. Its chip products and solutions power IBM eServer and TotalStorage systems as well as many of the world's best-known electronics brands. IBM semiconductor innovations include dual-core microprocessors, copper wiring, silicon-on-insulator and silicon germanium transistors, strained silicon, and eFUSE, a technology that enables computer chips to automatically respond to changing conditions. More information is available at: <http://www.ibm.com/chips>

#### 4-4-4-4 IBM, Sony, SCEI and Toshiba Disclose Key Details of the Cell Chip

##### **About Sony Corporation**

Sony Corporation is a leading manufacturer of audio, video, game, communications, key device and information technology products for the consumer and professional markets. With its music, pictures, computer entertainment and on-line businesses, Sony is uniquely positioned to be the leading personal broadband entertainment company in the world. Sony recorded consolidated annual sales of approximately \$72 billion for the fiscal year ended March 31, 2004. Sony Global Web Site: <http://www.sony.net/>

##### **About Sony Computer Entertainment Inc.**

Recognized as the global leader and company responsible for the progression of consumer-based computer entertainment, Sony Computer Entertainment Inc. (SCEI) manufacturers, distributes and markets the PlayStation® game console, the PlayStation®2 computer entertainment system and the PSP™ (PlayStation®Portable) handheld entertainment system. PlayStation has revolutionized home entertainment by introducing advanced 3D graphic processing, and PlayStation 2 further enhances the PlayStation legacy as the core of home networked entertainment. PSP is a new portable entertainment system that allows users to enjoy 3D games, with high-quality full-motion video, and high-fidelity stereo audio. SCEI, along with its subsidiary divisions Sony Computer Entertainment America Inc., Sony Computer Entertainment Europe Ltd., and Sony Computer Entertainment Korea Inc. develops, publishes, markets and distributes software, and manages the third party licensing programs for these platforms in the respective markets worldwide.

Headquartered in Tokyo, Japan, Sony Computer Entertainment Inc. is an independent business unit of the Sony Group.

##### **About Toshiba**

Toshiba Corporation is a leader in the development and manufacture of electronic devices and components, information and communication systems, digital consumer products and power systems. The company's ability to integrate wide-ranging capabilities, from hardware to software and services, assure its position as an innovator in diverse fields and many businesses. In semiconductors, Toshiba continues to promote its leadership in the fast growing system-on-chip market and to build on its world-class position in NAND flash memories, analog devices and discrete devices. Visit Toshiba's website at [www.toshiba.co.jp/index.htm](http://www.toshiba.co.jp/index.htm)