HPCwire

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Breaking News:

IBM Selects Universities for Cell BE Research

Ten universities spanning multiple geographies have been chosen as winners of the latest IBM Shared University Research (SUR) awards. For the first time, each of the universities will be using the Cell Broadband Engine (Cell BE) technology to enable students and faculty to drive innovation, collaborate and foster skill development in the creation of digital media, software platform performance and medical imaging solutions.

The Cell BE processor is a features a central processing core, based on IBM's Power Architecture technology, and eight synergistic processing elements (SPE). Cell BE "supercharges" compute-intensive applications, offering fast performance for computer entertainment and handhelds, virtual reality, wireless downloads, real-time video chat, interactive TV shows and other "image-hungry" computing environments. The Cell BE processor appears in products such as Sony Computer Entertainment's PLAYSTATION3, Toshiba's Cell BE Reference Set, a development tool for Cell BE products, and already is included in the IBM BladeCenter QS20, or "Cell Blade." The Cell BE processor is also used through joint collaboration with Mercury Computer Systems, Inc., targeted at aerospace and defense, semiconductor, medical imaging, and other markets.

As research helps drive innovation and growth, new skills are required to staff the emerging disciplines and technologies, leading to tremendous opportunities to drive Cell BE technology into multiple areas.

"Because of its ability to handle compute-intensive applications, we are seeing tremendous demand to incorporate Cell BE microprocessor technology in a host of products, solutions and opportunities outside of gaming," said Lilian Wu, Program Executive, IBM University Relations and Innovation. "All of these universities have very unique ideas on how they think Cell BE technology can be applied to help solve different problems, as well as using the technology to encourage skill development among its students and faculty. IBM is proud to collaborate with these universities to make these innovation ideas possible."

The ten winning universities include:

North America

-- Georgia Institute of Technology (Atlanta, Georgia): The College of Computing at Georgia Institute of Technology will undertake a research project to test high performance computing, gaming and digital content applications on Cell BE technology, as well as port and optimize key Cell BE libraries for data, video and image processing.

-- University of California San Diego (San Diego, California): UCSD's Experimental Game Lab will use Cell BE technology to accelerate computation in their applications, making more aspects of game environments a part of a user's real-time interactive experience.

-- University of Illinois at Urbana-Champaign: The University will look into developing programming models for the Cell Broadband Engine along with applying Cell BE technology in the continuing development of high performance computing applications including molecular dynamics and cosmology simulations.

-- University of Minnesota (Minneapolis/St. Paul, Minnesota): The University of Minnesota will investigate Cell BE implementation on numerical algorithms for fluid dynamics.

-- University of Virginia (Charlottesville, Virginia): The University's Institute for Advanced Technology in the Humanities will be using Cell BE technology to develop a real-time 3D rendering model of the City of Rome in AD400, for both classroom and research in the Institute's new 3D theater.

-- University of Washington (Seattle, Washington): The University's Department of Bioengineering will explore the use of Cell BE technology in various medical imaging modalities. Specifically, they will design a fully programmable ultrasound machine architecture that can be scaled from sophisticated high-end systems to low-cost units for use in doctors' offices and in the home.

Europe, Middle East and Asia

-- Barcelona Supercomputing Center at the Technical University of Catalonia (Barcelona, Spain): The Center will investigate innovative

programming models for scientific and technical computing for life sciences, earth sciences and engineering.

-- Tsinghua University (Beijing, China): Tsinghua University in China will implement Cell BE technology to test real-time multi-view video coding and rendering, taking multi-view images from the real world and modeling them for the virtual world to implement interactive streaming applications.

-- United Arab Emirates University (Al-Ain, UAE): The College of Information Technology at the United Arab Emirates University will develop a set of new applications for the Cell BE technology in the areas of seismic imaging and parallel oil reservoir simulations which are of particular importance in the oil industry.

-- University of Dublin Trinity College (Dublin, Ireland): The University will be implementing Cell BE technology with the goal to create realistic animation of human motion, which is critical to the development of computer and video games and movies.

IBM's SUR program awards computing equipment, software, and services to higher education institutions in order to facilitate research projects of mutual interest, including: the architecture of business and processes, real-time data analysis, privacy and security, supply chain management, information based medicine, deep computing, event-driven computing, and storage solutions. The SUR awards also support the advancement of university projects by connecting top researchers in academia with IBM researchers, along with representatives from product development and solution provider communities. IBM supports more than 50 SUR awards per year worldwide.

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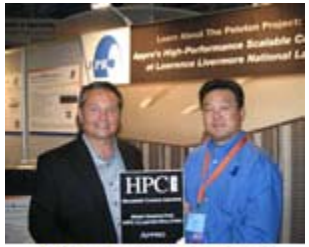
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Top of Page