

## BSC named first CUDA Research Center in Spain

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**Barcelona, 15<sup>th</sup> September 2010.-** The Barcelona Supercomputing Center (BSC) has been named by NVIDIA as a 2010 CUDA Research Center, the first one in Spain. The CUDA Research Center Program (<http://research.nvidia.com/content/cuda-research-centers>)

recognizes and fosters collaboration with research groups at universities and research institutes that are expanding the frontier of massively parallel computing. Institutions identified as CUDA Research Centers are doing world-changing research by leveraging CUDA and NVIDIA GPUs. This new research center, led by Professor Mateo Valero, BSC Director, will bring new equipment, a seed program for new NVIDIA GPU releases, software licenses, and training and collaboration opportunities with CUDA partners worldwide and with NVIDIA. The new CUDA Research Center recognizes BSC's broad-based research success in leveraging the NVIDIA CUDA technology and GPU computing, both in major research initiatives such as Global Memory for Accelerators (GMAC) as well as in projects dealing with the optimization of Reverse Time Migration (RTM), Finite Difference Time Domain Electromagnetic Wave Propagation, Computer Traffic Network Analysis and Protein Energy Landscape Exploration (PELE) applications ported to GPUs.



NVIDIA and BSC started collaborations back in April 2008 with a first initial conference of David Kirk about "NVIDIA CUDA Software and GPU Parallel Computing" in Barcelona. In addition to an active research program and many highly regarded publications, the CUDA Research Center also recognizes BSC's efforts in CUDA education, highlighted by the 2010 Summer School, "Programming and tUning Massively Parallel Systems (PUMPS)," offered in July on the Barcelona university campus. Prof. Nacho Navarro organized the event, co-sponsored by the University of Illinois, the HiPEAC NOE and NVIDIA, with distinguished faculty members Dr. David B. Kirk of NVIDIA and Prof. Wen-mei Hwu of the University of Illinois. PUMPS attracted more than 100 attendees from throughout the EU and beyond, from beginners to advanced faculty. Content was based on CUDA, OpenCL, OpenMP, and StarSs programming languages and numerical methods including FFT, Graph, Tiling, Grid, Montecarlo, FDTD, Sparse matrices, etc. The school featured lectures on



Left to right: Prof. Mateo Valero, BSC Director, Prof. Wen-mei Hwu, University of Illinois; Dr. David B. Kirk, NVIDIA; Prof. Nacho Navarro, BSC.

cutting-edge new techniques and hands-on laboratory experience in developing applications for many-core processors with massively parallel computing resources such as GPU accelerators. Applications case studies focused on Molecular Dynamics, MRI Reconstruction, RTM Stencil, and Dense Linear Systems. Furthermore, this collaboration will present research results at the GPU Technology Conference (GTC) in San Jose (California) by three senior BSC researchers.

A consistent thread throughout BSC's work has been collaboration with the University of Illinois. Prof. Navarro has long held a visiting appointment at Illinois, where he has collaborated with Hwu's IMPACT Research Group and other faculty colleagues in the Coordinated Science Laboratory. Recent BSC graduate, Dr. Isaac Gelado is currently serving as a post-doc with the IMPACT Group at Illinois, and plans are underway to expand student exchange opportunities between the two institutions. These collaborations have resulted in joint publications.

For more information, please contact:

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