NVIDIA CUDA TECHNOLOGY DRAMATICALLY ADVANCES THE PACE OF SCIENTIFIC RESEARCH

Distributed Computing Applications use NVIDIA GPUs for Biomedical Research, Space Exploration and Searching for Extra Terrestrial Intelligence

SANTA CLARA, CA—December 17, 2008— Once thought of as a technology used only for computer games, NVIDIA® GeForce® graphics processing units (GPUs) with CUDA™ technology are now being used for the serious business of scientific computation. Berkeley's Open Infrastructure for Network Computing (BOINC), one of the leading distributed computing platforms in the world, is using CUDA technology to tap the massively parallel processing power of NVIDIA GPUs with astounding results that could change the pace of scientific discovery through projects like GPUGRID and Einstein@home. The latest breakthrough came with the release of an optimized client that will allow SETI@home to analyze SETI (Search for Extraterrestrial Intelligence) data in about one-eighth of the time it previously took using CPUs.

"NVIDIA CUDA technology opens up processing power for scientific research that was previously unavailable and impossible for researchers to afford," said Dr. David Anderson, Research Scientist U.C. Berkeley Space Sciences Laboratory and founder of BOINC. "CUDA technology makes it easy for scientists and researchers to optimize BOINC projects for NVIDIA GPUs and they are already using it for applications in molecular dynamics, protein structure prediction, climate and weather modeling, medical imaging, and many other areas."

BOINC is a unique approach to supercomputing in which multiple consumer computers are joined together over the Internet and their combined computing power is used to tackle very large computational tasks. BOINC provides the distributed computing grid layer for a wide variety of scientific projects that work to help cure diseases, study global warming, discover pulsars, and do many other types of scientific research on home PCs.

SETI@Home

Researchers in the scientific field of SETI received a massive increase in computing power today, when NVIDIA and BOINC released an optimized client that will allow SETI@home to be accelerated on GeForce GPUs. SETI@home, the largest BOINC project with nearly

200,000 active users, searches for extra terrestrial intelligence by using radio telescopes to listen for narrow-bandwidth radio signals from space. The performance of a GeForce GTX 280 GPU running SETI@home is over 2 times faster than the fastest consumer multicore CPU (3.2GHz Intel Core i7 965) and nearly 8 times faster than an average dual core consumer CPU (2.66 GHz Intel Core2 Duo E8200).

GPUGRID

GPUGRID, the first BOINC project to use NVIDIA GeForce GPUs with CUDA technology for computing, utilizes NVIDIA-based graphics cards in participating PCs **to compute high-performance biomolecular simulations for scientific research**. Adding support for NVIDIA GPUs resulted in 1000 active GPUs delivering the same amount of computing power at least 20,000 CPUs in similar projects, delivering an average speed-up of 20 times.

"The molecular simulations performed by our volunteer computing project are some of the most common types performed by scientists, but they are also some of the most computationally demanding and usually require a supercomputer," stated **Dr. Gianni De Fabritiis, researcher at the Research Unit on Biomedical Informatics at the Municipal Institute of Medical Research and Pompeu Fabra University in Barcelona**. "Running GPUGRID on NVIDIA GPUs innovates volunteer computing by delivering supercomputing class applications on a cost effective infrastructure which will greatly impact the way biomedical research is performed."

Einstein@Home

NVIDA CUDA technology will soon be powering the third most widely used BOINC project, Einstein@Home, which uses distributing computing to search for spinning neutron stars (also called pulsars) using data from gravitational wave detectors.

"We expect that porting Einstein@Home to GPUs will increase the throughput of our computing by an order of magnitude," said Bruce Allen, director of the Max Plank Institute for Gravitational Physics and Einstein@Home Leader for the LIGO Scientific Collaboration. "This would permit deeper and more sensitive searches for continuous-wave sources of gravitational waves."

"Parallel processing is the key to enabling visual computing, whether in the home, office or research lab, and the CUDA-accelerated GPU is the leading engine behind this trend.

Distributed computing is an ideal application for parallel processing, so it's no surprise that these amazing applications are taking advantage of the GPU's unprecedented computational power" said Michael Steele, General Manager of Visual Consumer Solutions at NVIDIA. "NVIDIA GPUs are transforming the way we work, play, live and discover."

To download the NVIDIA SETI@home client visit www.nvidia.com. For more information on BOINC visit http://boinc.berkeley.edu/. For more information on the Einstein@Home visit http://einstein.phys.uwm.edu. For more information on GPUGRID visit http://www.gpugrid.net/. For more information on SETI@home visit http://setiathome.berkeley.edu/

About NVIDIA

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