

For Immediate Release:

EM Photonics and University of Delaware Team Up To Develop Advanced Algorithms on Multi-GPU Cluster for Air Force

*Libraries Developed Will Allow Air Force Engineers to Harness the Power of GPUs to Speed Up a
Wide Range of Critical Applications*

Newark, Delaware —August 16, 2010— EM Photonics and the Computer Science Department at the University of Delaware have been selected by the Air Force Office of Scientific Research (AFOSR) to develop innovative algorithms for scientific computing, modeling and simulation for a multi-GPU environment. Numerous Air Force applications will benefit from this research effort, including electromagnetic modeling, computational fluid dynamics, structural mechanics, and radiation transport, to name a few.

The EM Photonics' GPU Computing Team Lead John Humphrey, who developed the GPU-accelerated math library CULAtools, will be working closely with Dr. Michela Taufer's group, the Global Computing Laboratory at the University of Delaware. The new team has tremendous experience in the massive parallelization of computationally intense algorithms on GPUs and can rely on the deployment of the university's largest supercomputer, code-named "Geronimo", which is based on a custom GPGPU design utilizing NVIDIA Tesla and Fermi GPU computing technology.

"This is a valuable opportunity for EM Photonics. We have successfully collaborated in the past with Dr. Taufer's Group and their familiarity with our CULA library adds great value to this project. We look forward to extending our work in dense matrix solvers on multiple GPUs, as well as researching the feasibility of multi-GPU sparse solvers. With access to a set of GPU libraries that can address the computational needs of so many applications, Air Force engineers can stay focused on their specific projects without having to write software code for advanced GPU architectures," said John Humphrey, head of the GPU computing team at EM Photonics.

"The collaboration with a vibrant and successful company such as EM Photonics opens new opportunities for our students at UD to embrace research in concurrent programming and multi-core architectures. There is a tremendous need today for skilled engineers and computer scientists in this research area. This project is providing us with the unique opportunity to train our students for the future challenges in high performance computing by combining academic and industrial experience," said Dr. Michela Taufer.

The AFOSR invests in long-term, broad-based research into aerospace-related science and engineering. For more information about their research areas, programs, and accomplishments, please visit <http://www.wpafb.af.mil/afri/afosr>.

About EM Photonics

Headquartered in Newark, Delaware, EM Photonics is a recognized leader in implementing computationally intense algorithms on commodity hardware platforms. Using specialized computer architectures such as GPUs and FPGAs, EM Photonics accelerates their clients' applications to achieve better, faster results. We offer consulting services and custom-designed tools to commercial, government, and academic organizations seeking to optimize their scientific computing, image processing, and numerical analysis applications.

About CULAtools™

CULAtools™ is EM Photonics' product family comprised of CULA™ Basic, Premium, and Commercial. CULA is a GPU-accelerated implementation of LAPACK – a collection of commonly used linear algebra functions used by millions of developers in the scientific and engineering community. After developing accelerated linear algebra solvers since 2004 for our clients, EM Photonics partnered with NASA Ames Research Center in 2007 to extend and unify these libraries into a single, GPU-accelerated package. Through a partnership with NVIDIA®, the EM Photonics GPU Group focused on developing a commercially available implementation of accelerated linear algebra routines. By leveraging NVIDIA's CUDA™ architecture, CULA provides users linear algebra functions with unsurpassed performance. CULA is available for download at www.culatools.com.

About the University of Delaware

The University of Delaware has a great tradition of excellence, from our founding as a small private academy in 1743, to the research-intensive, technologically advanced institution of today. The University received its charter from the State of Delaware in 1833 and was designated one of the nation's historic Land Grant colleges in 1867. Today, UD is a Land Grant, Sea Grant and Space Grant institution. UD also is classified by the Carnegie Foundation for the Advancement of Teaching as a research university with very high research activity--a designation accorded to less than 3 percent of U.S. colleges and universities.

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