EM Photonics Releases CULA Sparse, a GPU Sparse Linear Algebra Library for Developers Looking for the Easiest Way to Accelerate their Solvers.

The wide-range of scientific computing applications relying on sparse linear algebra solvers can now run orders of magnitude faster.

Newark, Delaware — November 8th, 2011— EM Photonics, Inc., the maker of CULA Dense, announced today the general availability of CULA Sparse, a GPU-accelerated library of sparse matrix solvers. By leveraging the parallel computing power of NVIDIA's CUDA architecture, CULA Sparse has shown speed increases of up to 10X over optimized CPU implementations for the same solvers. This ready-to-integrate library allows engineers and developers to rapidly solve large sparse systems of equations using sparse iterative methods, which are common to a wide-range of scientific computing applications. From the design and modeling of microscale electro-mechanical systems (MEMS), to computational fluid dynamics (CDFD), to electromagnetics, to geomechanics and structural mechanics, the number of applications to benefit from a library like CULA Sparse is quite extensive.

EM Photonics has recently completed the pre-release beta trial period of CULA Sparse for select users at which time we received the following feedback:

"With CULA Sparse, I can run a preconditioned conjugate gradient iterative method to solve for the pressure field and ultimately return the required variables for the simulation, including the solution vector, iterations used, and convergence error. As a CUDA Programmer, **I found CULA Sparse easy to use, and compared to open source CUSP, CULA Sparse out performs it with flying colors**," said Stephen Codyer at the University of Massachusetts Dartmouth

"We designed CULA Sparse to have great performance, a wide range of features, and to be easy to use, all of which CULA dense has become recognized for. Version S1 has in excess of 100 routines, featuring a variety of solvers, preconditioners, and data types to make sure we meet the needs of customers in many different areas. The interfaces we chose are straightforward, and can be used readily, in comparison to many other available packages in the sparse domain. And finally, the performance is outstanding, with many routines performing at over 10x compared to multithreaded CPU solvers."

Product Features
CULA Sparse was developed with the same design principles of CULA Dense: simplicity and quality in a ready-to-integrate package that can serve users however they need it.

- Interfaces: for usage in C, C++, Fortran, MATLAB, and Python
- Platforms: supports all CUDA platforms, including Linux, Windows, and MAC OS X
- No CUDA programming experience required

For a list of the iterative solvers, preconditioners, and data formats featured in CULA Sparse, please go to www.culatools.com/sparse.

Pricing & Ordering
A CULA Sparse license is sold as a one-year subscription that includes free technical support and product updates for a year from purchase. Licenses are sold on a per-computer basis at $395 per single node. Academic pricing is $95 per license. Commercial licensing for redistribution is available. For more details, please visit our website.

About EM Photonics

EM Photonics specializes in maximizing the performance of applications via algorithm modification, tuning for the HPC environment, or the exploitation of GPU co-processing. Our solvers can be easily and effectively integrated into our customers' systems and optimized for their needs. Whether CPU, GPU, FPGA, or supercomputers, we maximize any platform to create novel solutions for our clients. EM Photonics provides off-the-shelf tools such as our CULA product line, as well as tailored solutions for our customers in areas such as computational fluid dynamics, computational electromagnetics, life sciences, finance, and signal processing.

For more information, contact:
Liana Barbedo
(302) 456-9003
barbedo@emphotonics.com