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ANSYS BREAKS 1 BILLION CELL BARRIER

Italian Team Uses Software from ANSYS and Supercomputer to Achieve Landmark in Engineering Simulation

SOUTHPOINTE, PA – November 17, 2008 – ANSYS, Inc. (NASDAQ: ANSS), a global innovator of simulation software and technologies designed to optimize product development processes, today announced the first commercial simulation of more than 1 billion computational cells using software from ANSYS — a significant milestone for the Company and the industry. An Italian research team headed by Ignazio Maria Viola, a member of the engineering group that worked with the Luna Rossa Challenge team for the 2007 America's Cup yacht racing competition, conducted the landmark simulation during August 2008 to investigate the aerodynamics of an America's Cup yacht. As the use of simulation becomes increasingly mission-critical in creating "winning" products — and at the same time reducing cost and cycle time — resolving this scale of problem becomes imperative in order to address the simulation of full systems or subsystems.

Computational cells are an essential element in the engineering simulation process. To perform a simulation, the surface area and/or volume of the geometry under consideration is broken down into hundreds of thousands, or millions, of smaller domains known as cells. Equations are solved to predict fluid flow or stress within each cell to produce an overall total simulation solution. The higher the cell count, the more detailed and comprehensive the simulation can be. Just 15 years ago, simulations of 60,000 cells were considered groundbreaking. More recently, simulations using hundreds of millions of cells have been performed by leaders in the industry. Exceeding 1 billion cells for a simulation has been the latest stretch goal for those pushing the envelope in engineering simulation.

"Aside from the technological feat of solving a problem so large, this is another milestone for ANSYS in providing engineering simulation tools that offer quality results and ease of use," said Jim Cashman, president and CEO of ANSYS, Inc. "Quality is sacrificed anytime an engineer is forced, due to technological limitations, to solve a part of a system, rather than a whole system. This achievement is yet another step toward the goal of simulating complex problems without adversely impacting results."

For the 1 billion cell simulation, engineers from two prominent Italian engineering organizations worked alongside Dr. Viola to perform the study. Raffaele Ponzini represented CILEA (the inter-university consortium for information and communication technologies, named Consorzio Interuniversitario Lombardo per L'Elaborazione Automatica), an organization that made available its supercomputer *Lagrange*, ranked among the most powerful in the world, to power the simulation. Giuseppe Passoni represented the Politecnico di Milano (Polytechnic of Milan), an institution internationally renowned for its expertise in fluid dynamics. In addition, the Regione Lombardia (regional government in Lombardy, Italy) provided finance for the project.

Simulation of an America's Cup racing yacht has the potential to include some of the most complex physics effects possible, with hydrodynamic and aerodynamic fluid flow and stiffness among the structural physics involved. The 1 billion cell-plus simulation case focused on the aerodynamic impact of wind on the America's Cup racing yacht sailing downwind, with a particular emphasis on the mainsail and an asymmetrical spinnaker. A reconstructed fluid dynamics geometry was used for the study based on work done using a wind tunnel at the Politecnico di Milano. The supercomputer used was CILEA's HP Cluster Platform 3000BL with Linux®, a system equipped with 208 HP ProLiant BL460c server blades and Intel® Xeon® 3.166 GHz quad-core central processing units (CPUs). Total peak performance of the system approached 22 teraflops (22 thousand billion floating point operations) per second; the system has recently been ranked number 135 on *TOP500's* list of supercomputers.

The huge analysis was completed in 170 hours, a little more than a week, achieved by the parallel processing performance of the software on the highly scaled computing resource. This time frame is considered commercially viable when the value of the complex problem solution is mission critical. The simulation results were compared to experimental wind tunnel testing data to benchmark the accuracy, with good agreement being found — confirming the capabilities of fluid dynamics software from ANSYS to operate well at even this most complex and demanding level of engineering simulation.

"Our research indicates that this is among the world's first applied engineering simulations using a single mesh of more than 1 billion cells performed with commercial software," said Dr. Viola. "Our dedicated and able team has brought together its expertise in various areas to help us achieve a truly significant moment in engineering. The possibilities for engineering simulation using high-performance computing are massive, and I'm sure we will see new groundbreaking design developments across industry by those following on from our work."

Such advances in computing power unlock the potential to dramatically increase engineering simulation capabilities. By partnering with key hardware vendors, ANSYS delivers on its commitment to engineered scalability and in providing customers with the best engineering simulation solutions available.

"ANSYS has played a key role in achieving this milestone at the leading edge of what is possible today in our industry," said Cashman "The ANSYS vision challenges us to continually drive to improve our products, and to take our technology solutions to the next level to meet customer needs. Our software has been specifically engineered to scale from the desktop to the largest multi-processor supercomputers, and it's extremely fulfilling to see our efforts validated by this major milestone. Without question, the demand for larger, more-detailed simulations will continue to grow, and today's achievement shows that we are well-positioned to meet this need."

For downloadable images, visit <http://www.ansys.com/newsimages>.

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About CILEA Interuniversity Consortium

CILEA is a consortium of 10 universities in Lombardy, established in 1974. The Italian Ministry of Universities and Research also belongs to the Consortium. CILEA is among the most advanced supercomputing centers in Europe. According to its statute, CILEA has many different purposes. Among them, it promotes the use of the most advanced computing systems in scientific and technological research, both public and private. It provides high-performance computing systems for national research. It promotes technology transfer in the field of information and communication technology. It creates, maintains and manages information systems for the national education and research system. All CILEA's services are offered to universities, public agencies and private companies.

About ANSYS, Inc.

ANSYS, Inc., founded in 1970, develops and globally markets engineering simulation software and technologies widely used by engineers and designers across a broad spectrum of industries. The Company focuses on the development of open and flexible solutions that enable users to analyze designs directly on the desktop, providing a common platform for fast, efficient and cost-conscious product development, from design concept to final-stage testing and validation. The Company and its global network of channel partners provide sales, support and training for customers. Headquartered in Canonsburg, Pennsylvania, U.S.A., with more than 60 strategic sales locations throughout the world, ANSYS, Inc. and its subsidiaries employ approximately 1,700 people and distribute ANSYS products through a network of channel partners in over 40 countries. Visit www.ansys.com for more information.

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