

NCCS Offers Unprecedented Computing Resources

Researchers have a unique opportunity to work on the world's most powerful scientific supercomputer: the petascale Cray XT Jaguar system at Oak Ridge National Laboratory (ORNL).

The Department of Energy's (DOE's) Office of Science is providing an unprecedented 700 million processor hours on Jaguar through the 2010 Innovative and Novel Computational Impact on Theory and Experiment (INCITE) program. If

you are with a groundbreaking simulation project that requires petascale computing power, we encourage you to apply.

INCITE promotes cutting-edge research that can only be conducted on state-of-the-art supercomputers. Projects span the gamut of computational science, from the evolution of galaxies to the quantum behavior of subatomic particles. INCITE researchers include climate scientists, fusion scientists, nuclear physicists, materials scientists, and computa-

tional biologists, to name a few.

The INCITE program is not restricted to DOE-sponsored projects. INCITE researchers come from universities and private industry as well as from DOE national laboratories and other government research institutions. These scientists have two things in common: they conduct research likely to solve critical problems or answer long-standing questions, and they cannot perform that research without leadership supercomputers such as Jaguar.

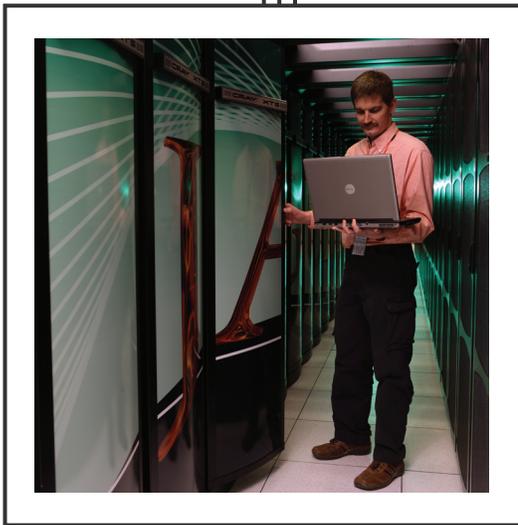
Jaguar is housed at ORNL's National Center for Computational Sciences (NCCS). The system has a peak performance of more than 1.64 quadrillion floating-point operations per second (1.64

petaflops), making it the Office of Science's only petascale system. Jaguar incorporates two components, a 1.38-petaflop Cray XT5 and a 263 trillion-floating-point-operations-per-second (263-teraflop) Cray XT4. All told, Jaguar comprises more than 180,000 processing cores, 360 terabytes of memory, and 10 petabytes of disk space.

The NCCS liaison program provides a support environment that helps each project excel. In addition to a staff of user assistance experts with long experience helping researchers get up to speed on Jaguar, the center maintains a staff of research scientists who act as advisers to the projects and advocates for them. Each INCITE project is assigned one of these research liaisons to provide assistance, if needed, with issues such as application scaling, porting, and tuning.

NCCS experts also assist with data analysis and visualization. INCITE projects typically generate huge volumes of data, and visualization experts at the center ensure that the analysis and presentation of this data are clear, effective, and dramatic. This mission is exemplified by the center's EVEREST Powerwall, a 30-foot-wide, 8-foot-tall tiled display that can show 35 million pixels of information. It provides an exceptional opportunity both to view more data and to view it in larger groups. A visualization cluster provides images to users via the internet.

If you are interested in taking advantage of these unique resources, you can find information on the INCITE program and the call for proposals at <http://www.science.doe.gov/ascr/INCITE/>. For more information on Jaguar and other resources available at the NCCS or for help preparing a proposal, contact help@nccs.gov or visit us on the web at www.nccs.gov.



The Cray XT5 Jaguar supercomputer allows researchers to perform simulations on a massive scale.

