Argonne NATIONAL LABORATORY

ARGONNE LEADERSHIP COMPUTING FACILITY

The 10-petaflops Mira supercomputer

BREAKTHROUGH SCIENCE AND ENGINEERING

The ALCF's unparalleled combination of resources is helping scientists accelerate their research in many fields, enabling high-impact scientific discoveries and transformative technologies.

- Biological Sciences
- Chemistry
- Computer Science
- Earth Science
- Engineering
- Materials Science
- Physics

The Argonne Leadership Computing Facility (ALCF), a U.S. Department of Energy (DOE) Office of Science User Facility, provides its user community with computing time and staff support to pursue significant breakthroughs in science and engineering. The ALCF is one of two DOE leadership computing facilities in the nation dedicated to open science.

ENABLING SCIENCE

With hundreds of thousands of processors working in parallel, supercomputers can run simulations of extremely complex physical systems and model physical processes that are too small or large, costly, or dangerous to study in a laboratory.

World-Class Supercomputing

The ALCF's supercomputer, Mira, is a 10-petaflops IBM Blue Gene/Q system that is capable of 10 quadrillion calculations per second. The facility's high-performance storage and networking infrastructure is designed to efficiently handle tremendous amounts of data. To further expedite scientific discovery, the ALCF also hosts a powerful visualization cluster for rapid rendering and analysis, and a testing and development platform for researchers preparing to use Mira.

Future Systems

ALCF's next-generation system, Aurora, will deliver more than 18 times the computational performance of Mira, using a nearly equal number of compute nodes. This powerful Intel/Cray system is scheduled for delivery in 2018. As part of the ramp-up to Aurora, the Theta early production system will allow users to pursue leading-edge computational science, while also helping them to prepare their scientific applications for Aurora's revolutionary architecture.

OPEN SCIENCE

The ALCF is available to any researcher in the world with a large-scale computing problem. Researchers gain access to ALCF systems through competitive, peer-reviewed allocation programs supported by DOE and Argonne National Laboratory, and publish their findings in high-impact journals and publications.

SUPPORT AND SERVICES

The ALCF's team of computational scientists, performance engineers, visualization experts, and support staff has the skills and expertise to ensure users get the most out of the facility's high-performance computing systems.

CONTACT

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U.S. DEPARTMENT OF ENERGY

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