Argonne National Laboratory Selects Altair to Turbocharge Scientific Breakthroughs in the Exascale Era

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Altair® PBS Professional® will orchestrate workloads for massive high-performance computing systems including the Polaris and Aurora supercomputers, boosting the world's most important research efforts

TROY, Mich. and LEMONT, Ill., Nov. 10, 2021 /PRNewswire/ -- Altair (Nasdaq: ALTR), the global leader converging simulation, HPC, and AI, announced that Argonne National Laboratory will utilize Altair PBS Professional across the organization's HPC systems at the Argonne Leadership Computing Facility (ALCF) – including the Polaris and Aurora supercomputers – to accelerate breakthroughs in science and engineering and lead the era of exascale computing. The ALCF is a U.S. Department of Energy user facility at Argonne National Laboratory.

PBS Professional – which replaces the ALCF's Cobalt workload manager – will be the default workload management solution and job scheduler and will allow researchers to easily and more efficiently run diverse workloads, including machine learning and data-intensive tasks, as well as traditional simulations.

With Polaris as a leading-edge testbed system for Aurora, scheduled to be the fastest exascale computing system in the U.S. and capable of performing a quintillion calculations per second, it's critical to ensure that downtime is avoided as it could put research teams hundreds of hours behind completing a project. Supported by Altair's global team of HPC specialists, PBS Professional will optimize and manage thousands of node hours simultaneously and will help ensure that researchers using the ALCF can make quicker, more efficient scientific discoveries.

"We explored many options when we were looking for a workload manager to replace our in-house Cobalt scheduler," said Bill Allcock, manager of ALCF's advanced integration group. "With Altair and PBS Professional we found an open and established mechanism for accepting contributions, with a long-term roadmap that is well aligned with our own. Altair's PBS Professional will help compute-intensive research campaigns that will be running on our next-generation supercomputers."

In 2020 alone, the ALCF served more than 100 million node hours of compute time. PBS Professional's multi-dimensional workload orchestration capabilities support the ALCF's mission to advance scientific exploration of the world's most pressing issues including cancer treatments, clean energy, particle collision research, and more. It will also help researchers:

- **Advance our understanding of the universe –** Researchers will carry out large-scale, high-resolution simulations of the universe to help guide and interpret observations from upcoming sky surveys, providing insights into mysterious cosmological phenomena, such as dark matter and dark energy.
- **Design more efficient aircraft –** Researchers will perform massive computational fluid dynamics simulations to explore how turbulent flows impact aircraft performance, generating data that can help inform the design of more fuel-efficient airplanes.
- **Improve solar power technology** – Researchers will combine simulation, data science, and machine learning techniques on ALCF's next-generation systems to revolutionize the computational discovery of new materials for more efficient organic solar cells.
- **Predict drug responses virtually –** Researchers will screen billions of virtual drugs while predicting their effects on tumor cells. This approach aims to dramatically accelerate successful drug development and provide new approaches to personalized cancer medicine.

"Exascale computing will open new pathways of discovery and transform how researchers tackle some of the world's most important challenges. Altair

is proud to provide scalability fit for exascale computing and to help Argonne's scientific user community accelerate their groundbreaking work," said James R. Scapa, founder and chief executive officer, Altair. "PBS Professional is a proven, powerful, secure, and trusted enterprise-level solution designed to improve productivity, optimize utilization and efficiency, and simplify administration for clusters, clouds, and supercomputers."

In addition to ALCF's adoption of PBS Professional, the workload manager and job scheduler will be an available resource for all the lab's HPC systems and clusters.

For more information about PBS Professional, visit https://www.altair.com/pbs-professional/ and to learn about the Argonne Leadership Computing Facility, visit https://alcf.anl.gov/.

About Altair (Nasdaq: ALTR)
Altair is a global technology company providing software and cloud solutions in the areas of simulation, high-performance computing (HPC), and artificial intelligence (AI). Altair enables organizations across broad industry segments to compete more effectively in a connected world while creating a more sustainable future. To learn more, please visit www.altair.com.

About Argonne National Laboratory
Argonne National Laboratory seeks solutions to pressing national problems in science and technology. The nation's first national laboratory, Argonne conducts leading-edge basic and applied scientific research in virtually every scientific discipline. Argonne researchers work closely with researchers from hundreds of companies, universities, and federal, state and municipal agencies to help them solve their specific problems, advance America's scientific leadership and prepare the nation for a better future. With employees from more than 60 nations, Argonne is managed by UChicago Argonne, LLC for the U.S. Department of Energy's Office of Science.

The U.S. Department of Energy's Office of Science is the single largest supporter of basic research in the physical sciences in the United States and is working to address some of the most pressing challenges of our time. For more information, visit https://energy.gov/science.

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