



“Summit is the next leap in leadership-class computing systems for open science.”

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HPC User Support Specialist and Programmer



SUMMIT: Scaling New Heights

The Oak Ridge Leadership Computing Facility (OLCF), a US Department of Energy (DOE) Office of Science user facility at Oak Ridge National Laboratory (ORNL), provides access to the nation’s fastest, most powerful supercomputer to address some of the grand challenges of our time and enable scientific breakthroughs across diverse scientific disciplines.

In 2018, OLCF will launch Summit, the next leap in leadership-class computing systems for open science. Summit will build on the legacy of OLCF’s current supercomputer, Titan, the nation’s most powerful open-science computer. Since coming online in 2012, Titan has helped researchers increase the complexity of models and the realism of simulations, contributing to projects like understanding drought resistant food and fuel crops, identifying new battery materials, and developing data tools for cancer research.

Leading the Way

Summit will outperform Titan in every way. It will move data 5 to 10 times faster, store 8 times more data, and perform many more calculations simultaneously than Titan. Researchers who have been using supercomputers like Titan will be able to add much more complexity to their codes, which will produce models and simulations with much greater resolution and higher fidelity for improved research output. Some early Summit research projects include

- Developing astrophysics simulations at an unprecedented scale.
- Simulating particle turbulence in sustainable fusion reactions.
- Researching materials for high-temperature superconductors.
- Studying fluid dynamics to accelerate combustion science.

25 Years of Research Excellence

The launch of Summit will take place one year after OLCF celebrates its 25th year of operation. Since 1992, the facility has enabled a wide variety of research and is home to world-class staff who ensure that OLCF users have efficient, reliable computing resources and access to data management and data analysis expertise.

Oak Ridge National Laboratory is managed by UT-Battelle for the US Department of Energy

- 2017**
Year OLCF celebrates 25th anniversary
- 200**
Number of Summit petaflops compared to Titan’s 27
- 4,600**
Number of Summit nodes
- 5 to 10**
times the performance of Titan

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