

University of Tennessee supercomputer sets world record for energy efficiency

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An Appro Xtreme-X Supercomputer named Beacon, deployed by the National Institute for Computational Sciences (NICS) of the University of Tennessee, tops the current Green500 list, which ranks the world's fastest supercomputers based on their power efficiency.

To earn its number-one ranking, the supercomputer employed Intel® Xeon® processors and Intel Xeon Phi coprocessors to produce 112.2 trillion calculations per second using only 44.89 kW of power, resulting in world-record efficiency of 2.499 billion floating [point operations](#) per second per watt.

The state-funded deployment of the energy-efficient supercomputer marks the expansion of the ongoing Beacon Project at NICS. Partially funded by an award from the National Science Foundation (NSF), the project seeks to determine the impact of emerging technologies such as the Intel Xeon Phi coprocessor on [computational simulations](#) in science and engineering.

"The grant from NSF enabled us to deploy a small, experimental cluster equipped with pre-production Intel Xeon Phi coprocessors," said Dr. Glenn Brook, director of the Application Acceleration Center of Excellence at NICS and the principal investigator for the project. "It also funds an ongoing research program exploring the porting and optimization of scientific codes to the new architecture. In essence, the NSF award provided the seed funding necessary to establish the now expanded project."

As part of the ongoing research program, NICS is soliciting proposals for participation in the Beacon Project. Researchers throughout the United States and Europe are expected to respond to the call for participation. Proposals that are selected after a peer review process will be awarded time and limited support on the new [supercomputer](#). Further information about the call for participation will be made available soon.

Provided by National Institute for Computational Sciences

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