

# K computer takes first place on HPCG benchmark

November 16 2016

---



On November 16, the K computer took first place in the HPCG benchmark, a new index developed to create a more realistic view of supercomputer performance compared to the commonly used LINPACK benchmark. This success, which surpasses the second place achieved in 2014 and 2015, was made possible by significant improvements of the performance of the system and applications in the two intervening years.

The HPCG (High Performance Conjugate Gradient) benchmark measures how fast a [computer](#) can solve symmetric sparse linear system equations using the conjugate gradient method preconditioned with a multi-grid symmetric Gauss-Seidel smoother. Problems of this type are typically encountered in actual engineering and industrial applications, and require a balance between calculation [performance](#), memory

performance and communication performance, unlike LINPACK, which looks at calculation speed alone.

For this competition, all of the K computer's 82,944 compute nodes were used, achieving a performance of 602 teraflops, a score quite higher than the 461 teraflops it reached when taking second place in 2014. This new figure is higher than the supercomputers that placed higher than the K computer in the TOP500 rankings, demonstrating outstanding performance in various science and engineering fields.

According to Kimihiko Hirao, director of the RIKEN Advanced Institute for Computational Science, "Combined with the fact that the K computer took seventh place on the TOP500 list and first place on the Graph 500 list this year, this achievement demonstrates the high performance of our supercomputer in general applications, making it a powerful tool for industrial and scientific applications in a wide range of fields."

According to Jack Dongarra of the University of Tennessee, who developed the benchmark, "The K computer is number one on the HPCG list showing that a well-balanced architecture with a good floating point rate and a good memory transfer rate allows high performance for a wide range of scientific [applications](#)."

The award will be presented at [SC16](#), the high-performance computing conference, in Salt Lake City, Utah.

Provided by RIKEN

Citation: K computer takes first place on HPCG benchmark (2016, November 16) retrieved 25 April 2024 from <https://phys.org/news/2016-11-hpcg-benchmark.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.