

## The K Computer and Japan Plan for Exascale

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At the end of September 2012, official operation of the Kcomputer has started. Already in many areas we see many great results. Users of K are actually very much impressed having experienced using K. The K is Japanese supercomputer jointly developed by Fujitsu and Riken and everything is made in Japan. The K computer won the top position on TOP500 in 2011 achieving a LINPACK benchmark performance of 10 petaflops - becoming the first supercomputer ever to reach this milestone. The K fell behind China and US machines on the latest TOP500. We believe that the K is still one of the most powerful and user-friendly machine in the world. K demonstrates an extraordinary level of stability. K is capable of sustained performance of 1 PF on real applications in a wide range of science. K is the strong science machine.

Computer simulation is becoming more and more important for contemporary science and engineering. Nobel Prizes 2013 in chemistry and physics show how computing is changing every field of research. Particularly simulations performed on the supercomputer will drive progress in science and technology and play an important role in solving difficult problems that we face as a society. There are very critical issues that need to be solved - global warming, alternative energy, disaster mitigation, new materials, healthcare, security, etc. The role of simulations will become increasingly larger, and the results that they provide will undoubtedly greatly affect society. The new frontiers opened up by the K computer will be presented.

The post K project will be lauced from April 2014. MEXT selected RIKEN AICS to develop a new exascale supercomputer by 2020. The post K is 100 times faster than the current K computer. Architecture is hybrid of general-purpose plus accelerator components. We will push the state of the art in power efficiency, scalability & reliability. Power consumption is limited in the range of 30-40MW.Total project cost is ca. JPY140 billion with about JPY 110 billion coming from the government's budget (JPY 1.2 billion for 2014)

Computer simulation will dramatically increase our ability to understand the world around us. With exascale computing, we are reaching a tipping point in predictive science. Its success will have lasting impact on the planet and people all around the world and for generations into the future. With a planned deployment in 2020, the new system is expected to keep Japan at the leading edge of computing science and technology.