United States Coalition for the Advancement of Supercomputing

June 12, 2014

The Honorable Cynthia M. Lummis
Chair
Subcommittee on Energy
Committee on Science, Space and
Technology
U.S. House of Representatives
Washington, DC 20515

The Honorable Eric Swalwell
Ranking Member
Subcommittee on Energy
Committee on Science, Space and
Technology
U.S. House of Representatives
Washington, DC 20515

Dear Chairwoman Lummis and Ranking Member Swalwell:

EINSTEIN – Advanced Scientific Computing Research

The United States Coalition for the Advancement of Supercomputing (USCAS) is pleased to express support for the provisions of Sec. 113. Advanced Scientific Computing Research of the EINSTEIN (Enabling Innovation for Science, Technology, and Energy in America) Act of 2014, and the accompanying authorization of appropriations in Sec. 119(b)(5) that would enable executing a robust R&D program to maintain U.S. leadership in advanced computing.

For the past 65 years the United States has led the world, essentially unchallenged, in the development and application of high-performance computing (HPC) technology. This technology has been a major driver in the economic growth and national security of the U.S. in the post WW-II period. It has enabled innovation in a vast range of industries and has created a myriad of highly paid jobs that made this country the economic model for the world. This leadership, however, has not gone unnoticed by other nations. In the last ten to fifteen years, other countries have undertaken unprecedented national initiatives to challenge and surpass U.S. leadership in HPC. For example, China has invested at more than double the U.S. rate over the last decade, has created over a dozen very large computer centers, and now has the world's largest supercomputer. Japan is very active in this area, as is Russia, and in the West, the E.U. is investing hundreds of million Euros in launching a major program to achieve supercomputer leadership by 2020. The race is on!

Because of the broad impact of digital computer technology across all segments of our society, from smart cell phones, better cars, and new drugs to the "internet of things," the U.S. must continue to invest in this enabling technology to meet the challenges from abroad and to help guarantee U.S. economic growth, competitiveness, and our national security.

United States Coalition for the Advancement of Supercomputing

The technical challenges of Exascale computer systems in achieving substantial power reductions, and solving problems of parallelism/concurrency, memory/storage, reliability/resiliency, software/programming, and "big data" to deliver affordable, programmable, useful platforms require a concerted and sustained R&D effort to develop new integrated computing architectures and software. Just as the governments in Europe, China, Russia, and Japan are investing heavily in HPC technology, enactment of <u>Sec. 113. Advanced Scientific Computing Research</u> would provide the necessary support to accelerate a sustained, long-term, HPC technology R&D program to achieve and demonstrate "capable" Exascale systems.

The successful design, development, and deployment of these next-generation supercomputers, and beyond, promises transformative impact on future scientific discovery, on technological innovation in achieving the nation's national security, energy security, and environmental sustainability goals, and on economic competitiveness in the global marketplaces of the early 21st Century. This is a leadership position in a strategically critical technology that the U.S. simply cannot afford to surrender. Thank you.

Sincerely,

U.S. Coalition for the Advancement of Supercomputing (USCAS)*

*USCAS is an ad-hoc association of representatives of organizations from industry, academia, national laboratories, and professional societies interested in advancing supercomputing to support the missions of the U.S. Government and competitiveness of U.S. industry and commerce in the global marketplace.

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