

**STATEMENT BY**

**INDUSTRY MEMBERS OF THE U.S. COALITION FOR THE  
ADVANCEMENT OF SUPERCOMPUTING (USCAS)**

**BEFORE THE HOUSE APPROPRIATIONS COMMITTEE**

**ENERGY AND WATER SUBCOMMITTEE**

**March 16, 2016**

Chairman Simpson, Ranking Member Kaptur, and Members of the Energy and Water Development Appropriations Subcommittee, thank you for allowing Industry Members of the U.S. Coalition for the Advancement of Supercomputing (USCAS) to submit this written statement advocating for full funding of the Department of Energy's fiscal year 2017 budget request for supercomputing.

Industry Members of the U.S. Coalition for the Advancement of Supercomputing (USCAS) include the following organizations which collectively lead the world in supercomputing technology: Advanced Micro Devices, Battelle Memorial Institute, Cray Inc., Hewlett Packard Enterprise, IBM, Intel, Micron Technology, Inc., Nvidia, Reservoir Labs, SAIC, Seagate, and the Semiconductor Industry Association.

We have come together to lend a single voice and focus to the national bipartisan initiative to develop the next generation of supercomputing technology, that like previous generations of supercomputing have done already, will lead to unprecedented discovery and innovative solutions for the government, the scientific community, and industry. Supercomputing is the bedrock of our national effort to maintain America's competitive edge in the transformative research and development that fuels U.S. innovation and propels economic growth. The Department of Energy has a leadership role in this effort. We are testifying today to tell you that what the Department is doing in terms of its supercomputing initiatives is critical, thoughtful, helpful, and productive to the demands of our national security, prosperity and global economic competitiveness. The Industry Members of the Coalition strongly urge the Subcommittee to provide the full amount requested by the Department of Energy in its fiscal year 2017 budget request to Congress for supercomputing programs, which are in budget lines

called Advanced Scientific Computing Research in the Office of Science and Advanced Simulation and Computing in the National Nuclear Security Administration.

U.S. leadership in advanced computing is increasingly challenged from abroad. China, Japan, Russia and the European Union are making substantial investments. And the stakes are huge. The countries that are first in scientific discoveries reap large economic benefits ranging from better manufacturing, rapid prototyping, faster product commercialization as well as spin-offs in computer systems, software and information technology. Virtually every sector of our society has become dependent on the continued growth in computing performance to advance science and technology, drive industrial productivity, increase efficiency, and enable innovation.

Last July, the President issued an executive order to form the National Strategic Computing Initiative (NSCI) across federal agencies whose main purpose is to focus on achieving within the next ten years a paradigm-shifting breakthrough in high performance computing which restores U.S. global superiority in supercomputing. NSCI was intended to drive collaborations across the efforts of the National Science Foundation, the National Institute of Standards and Technology, the Department of Energy, the Department of Defense, and the Intelligence Community to lift the capabilities in “all of government” through more effective public-private partnerships by growing the capabilities and deployments of supercomputing. The largest effort within the NSCI is the Exascale computing initiative, which envisions fielding future computing systems capable of a billion billion calculations per second (significantly more capable than our most advanced petascale computers in existence today), paired with the ability to store, analyze and process unprecedented volumes of data and development of advanced software and algorithms optimized for solving strategic problems.

Since the beginning of the digital era, the U.S. Government has made pivotal investments in the high performance computing industry at critical times when market progress was stagnating. Our nation is once again at a critical turning point in computing technology, with industry innovations in hardware and software architectures driving advances in computing performance for mobile phones, laptops and servers, but where these advances are slowing down for supercomputing. Yet, the importance of high performance computing simulations and big data analytics is rapidly increasing as the U.S. faces serious and urgent economic, environmental, and national security challenges based on dynamic changes in the energy and climate systems, as well as growing national security threats. Committed U.S. leadership toward supercomputing, including Exascale computing, will be a critical contributor to our nation's competitiveness in science, national defense, cybersecurity, and energy innovation.

The Department of Energy's fiscal year 2017 budget requests well-justified 13 percent growth over the fiscal year 2016 appropriated level for the Exascale Computing Initiative and importantly a new budget line entitled "Exascale Computing Program" within the Office of Science funded at \$154 million. This is intended to introduce more rigor into the Exascale initiative by using long-standing and highly successful management processes that DOE has used in the past when developing complex, emerging new technologies such as advanced photon sources, spallation neutron sources, or heavy ion accelerators. The processes include detailed work breakdown structures, reviews, and delivery checks. The Department of Energy's fiscal year 2017 budget request for Exascale is organized around four pillars: application development, software technology, hardware technology, and Exascale systems. DOE plans to expand its efforts in the first three pillars in fiscal year 2017, so that it can begin on the critical fourth pillar beginning in fiscal year 2018.

Within the Office of Science, funding for Exascale totals \$190 million, to include another \$26 million in Basic Energy Sciences and \$10 million in Biological and Environmental Research. When coupled with the \$95 million requested by the National Nuclear Security Administration, the Department of Energy's total request for the Exascale Computing Initiative is \$285 million in fiscal year 2017.

The Industry Members of the U.S. Coalition for the Advancement of Supercomputing strongly urge your Subcommittee to fully support the Administration's full fiscal year 2017 budget request for the Exascale Computing Initiative of \$285 million in the Department of Energy. We appreciate the opportunity to provide our perspectives on this very important funding in your bill. Thank you.