I

110TH CONGRESS
1ST SESSION

H. R. 1068

To amend the High-Performance Computing Act of 1991.

IN THE HOUSE OF REPRESENTATIVES

FEBRUARY 15, 2007

Mr. BAIRD (for himself and Mrs. BIGGERT) introduced the following bill; which was referred to the Committee on Science and Technology

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A BILL

To amend the High-Performance Computing Act of 1991.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. HIGH-PERFORMANCE COMPUTING RESEARCH AND DEVELOPMENT PROGRAM.

Title I of the High-Performance Computing Act of 1991 (15 U.S.C. 5511 et seq.) is amended—

(1) in the title heading, by striking "**AND THE NATIONAL RESEARCH AND EDUCATION NETWORK**" and inserting "**RESEARCH AND DEVELOPMENT**";

(2) in section 101(a)—

(A) by striking subparagraphs (A) and (B) of paragraph (1) and inserting the following:

''(A) provide for long-term basic and applied research on high-performance computing;

''(B) provide for research and development on, and demonstration of, technologies to advance the capacity and capabilities of high-performance computing and networking systems;

''(C) provide for sustained access by the research community in the United States to high-performance computing systems that are among the most advanced in the world in terms of performance in solving scientific and engineering problems, including provision for technical support for users of such systems;

''(D) provide for efforts to increase software availability, productivity, capability, security, portability, and reliability;

''(E) provide for high-performance networks, including experimental testbed networks, to enable research and development on, and demonstration of, advanced applications enabled by such networks;

''(F) provide for computational science and engineering research on mathematical modeling and al-

gorithms for applications in all fields of science and engineering;

''(G) provide for the technical support of, and research and development on, high-performance computing systems and software required to address Grand Challenges;

''(H) provide for educating and training additional undergraduate and graduate students in software engineering, computer science, computer and network security, applied mathematics, library and information science, and computational science; and

''(I) provide for improving the security of computing and networking systems, including Federal systems, including research required to establish security standards and practices for these systems.'';

(B) by striking paragraph (2) and redesignating paragraphs (3) and (4) as paragraphs (2) and (3), respectively;

(C) in paragraph (2), as so redesignated by subparagraph (B) of this paragraph—

(i) by striking subparagraph (B);

(ii) by redesignating subparagraphs (A) and (C) as subparagraphs (D) and (F), respectively;

(iii) by inserting before subparagraph (D), as so redesignated by clause (ii) of this subparagraph, the following new subparagraphs:

''(A) establish the goals and priorities for Federal high-performance computing research, development, networking, and other activities;

''(B) establish Program Component Areas that implement the goals established under subparagraph (A), and identify the Grand Challenges that the Program should address;

''(C) provide for interagency coordination of Federal high-performance computing research, development, networking, and other activities undertaken pursuant to the Program;''; and

(iv) by inserting after subparagraph (D), as so redesignated by clause (ii) of this subparagraph, the following new subparagraph:

''(E) develop and maintain a research, development, and deployment roadmap for the provision of high-performance computing systems under paragraph (1)(C); and''; and

(D) in paragraph (3), as so redesignated by subparagraph (B) of this paragraph—

(i) by striking ''paragraph (3)(A)'' and inserting ''paragraph (2)(D)'';

(ii) by amending subparagraph (A) to read as follows:

''(A) provide a detailed description of the Program Component Areas, including a description of any changes in the definition of or activities under the Program Component Areas from the preceding report, and the reasons for such changes, and a description of Grand Challenges supported under the Program;'';

(iii) in subparagraph (C), by striking ''specific activities'' and all that follows through ''the Network'' and inserting ''each Program Component Area'';

(iv) in subparagraph (D), by inserting ''and for each Program Component Area'' after ''participating in the Program'';

(v) in subparagraph (D), by striking ''applies;'' and inserting ''applies; and'';

(vi) by striking subparagraph (E) and redesignating subparagraph (F) as subparagraph (E); and

(vii) in subparagraph (E), as so redesignated by clause (vi) of this subpara-

graph, by inserting ''and the extent to which the Program incorporates the recommendations of the advisory committee established under subsection (b)'' after ''for the Program'';

(3) by striking subsection (b) and inserting the following:

''(b) ADVISORY COMMITTEE.—(1) The President shall establish an advisory committee on high-performance computing consisting of non-Federal members, including representatives of the research, education, and library communities, network providers, and industry, who are specially qualified to provide the Director with advice and information on high-performance computing. The recommendations of the advisory committee shall be considered in reviewing and revising the Program. The advisory committee shall provide the Director with an independent assessment of—

''(A) progress made in implementing the Program;

''(B) the need to revise the Program;

''(C) the balance between the components of the Program, including funding levels for the Program Component Areas;

''(D) whether the research and development undertaken pursuant to the Program is helping to maintain United States leadership in high-performance computing and networking technology; and

''(E) other issues identified by the Director.

''(2) In addition to the duties outlined in paragraph (1), the advisory committee shall conduct periodic evaluations of the funding, management, coordination, implementation, and activities of the Program, and shall report not less frequently than once every two fiscal years to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate on its findings and recommendations. The first report shall be due within one year after the date of enactment of this paragraph.

''(3) Section 14 of the Federal Advisory Committee Act shall not apply to the advisory committee established by this subsection.''; and

(4) in subsection (c)(1)(A), by striking ''Program or'' and inserting ''Program Component Areas or''.

SEC. 2. DEFINITIONS.

Section 4 of the High-Performance Computing Act of 1991 (15 U.S.C. 5503) is amended—

(1) in paragraph (2), by inserting ''and multidisciplinary teams of researchers'' after ''high-performance computing resources'';

(2) in paragraph (3)—

(A) by striking ''scientific workstations,'';

(B) by striking ''(including vector supercomputers and large scale parallel systems)'';

(C) by striking ''and applications'' and inserting ''applications''; and

(D) by inserting '', and the management of large data sets'' after ''systems software'';

(3) in paragraph (4), by striking ''packet switched'';

(4) by striking ''and'' at the end of paragraph (5);

(5) by striking the period at the end of paragraph (6) and inserting ''; and''; and

(6) by adding at the end the following new paragraph:

''(7) 'Program Component Areas' means the major subject areas under which are grouped related individual projects and activities carried out under the Program.''.

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