

110TH CONGRESS
1ST SESSION

H. R. 1068

IN THE SENATE OF THE UNITED STATES

MARCH 13, 2007

Received; read twice and referred to the Committee on Commerce, Science,
and Transportation

AN ACT

To amend the High-Performance Computing Act of 1991.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

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

3 Title I of the High-Performance Computing Act of
4 1991 (15 U.S.C. 5511 et seq.) is amended—

5 (1) in the title heading, by striking “**AND**
6 **THE NATIONAL RESEARCH AND EDU-**
7 **CATION NETWORK**” and inserting “**RE-**
8 **SEARCH AND DEVELOPMENT**”;

9 (2) in section 101(a)—

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

12 “(A) provide for long-term basic and applied re-
13 search on high-performance computing;

14 “(B) provide for research and development on,
15 and demonstration of, technologies to advance the
16 capacity and capabilities of high-performance com-
17 puting and networking systems;

18 “(C) provide for sustained access by the re-
19 search community in the United States to high-per-
20 formance computing systems that are among the
21 most advanced in the world in terms of performance
22 in solving scientific and engineering problems, in-
23 cluding provision for technical support for users of
24 such systems;

1 “(D) provide for efforts to increase software
2 availability, productivity, capability, security, port-
3 ability, and reliability;

4 “(E) provide for high-performance networks, in-
5 cluding experimental testbed networks, to enable re-
6 search and development on, and demonstration of,
7 advanced applications enabled by such networks;

8 “(F) provide for computational science and en-
9 gineering research on mathematical modeling and al-
10 gorithms for applications in all fields of science and
11 engineering;

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

16 “(H) provide for educating and training addi-
17 tional undergraduate and graduate students in soft-
18 ware engineering, computer science, computer and
19 network security, applied mathematics, library and
20 information science, and computational science; and

21 “(I) provide for improving the security of com-
22 puting and networking systems, including Federal
23 systems, including research required to establish se-
24 curity standards and practices for these systems.”;

1 (B) by striking paragraph (2) and redesignig-
2 nating paragraphs (3) and (4) as paragraphs
3 (2) and (3), respectively;

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

6 (i) by striking subparagraph (B);

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

10 (iii) by inserting before subparagraph
11 (D), as so redesignated by clause (ii) of
12 this subparagraph, the following new sub-
13 paragraphs:

14 “(A) establish the goals and priorities for Fed-
15 eral high-performance computing research, develop-
16 ment, networking, and other activities;

17 “(B) establish Program Component Areas that
18 implement the goals established under subparagraph
19 (A), and identify the Grand Challenges that the Pro-
20 gram should address;

21 “(C) provide for interagency coordination of
22 Federal high-performance computing research, devel-
23 opment, networking, and other activities undertaken
24 pursuant to the Program;” and

1 (iv) by inserting after subparagraph
2 (D), as so redesignated by clause (ii) of
3 this subparagraph, the following new sub-
4 paragraph:

5 “(E) develop and maintain a research, develop-
6 ment, and deployment roadmap for the provision of
7 high-performance computing systems under para-
8 graph (1)(C); and”;

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

11 (i) by striking “paragraph (3)(A)”
12 and inserting “paragraph (2)(D)”;

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

15 “(A) provide a detailed description of the Pro-
16 gram Component Areas, including a description of
17 any changes in the definition of or activities under
18 the Program Component Areas from the preceding
19 report, and the reasons for such changes, and a de-
20 scription of Grand Challenges supported under the
21 Program;”;

22 (iii) in subparagraph (C), by striking
23 “specific activities” and all that follows
24 through “the Network” and inserting
25 “each Program Component Area”;

1 (iv) in subparagraph (D), by inserting
2 “and for each Program Component Area”
3 after “participating in the Program”;

4 (v) in subparagraph (D), by striking
5 “applies;” and inserting “applies; and”;

6 (vi) by striking subparagraph (E) and
7 redesignating subparagraph (F) as sub-
8 paragraph (E); and

9 (vii) in subparagraph (E), as so reded-
10 igned by clause (vi) of this subpara-
11 graph, by inserting “and the extent to
12 which the Program incorporates the rec-
13 ommendations of the advisory committee
14 established under subsection (b)” after
15 “for the Program”;

16 (3) by striking subsection (b) of section 101
17 and inserting the following:

18 “(b) ADVISORY COMMITTEE.—(1) The President
19 shall establish an advisory committee on high-performance
20 computing consisting of non-Federal members, including
21 representatives of the research, education, and library
22 communities, network providers, and industry, who are
23 specially qualified to provide the Director with advice and
24 information on high-performance computing. The rec-
25 ommendations of the advisory committee shall be consid-

1 ered in reviewing and revising the Program. The advisory
2 committee shall provide the Director with an independent
3 assessment of—

4 “(A) progress made in implementing the Pro-
5 gram;

6 “(B) the need to revise the Program;

7 “(C) the balance between the components of the
8 Program, including funding levels for the Program
9 Component Areas;

10 “(D) whether the research and development un-
11 dertaken pursuant to the Program is helping to
12 maintain United States leadership in high-perform-
13 ance computing and networking technology; and

14 “(E) other issues identified by the Director.

15 “(2) In addition to the duties outlined in paragraph
16 (1), the advisory committee shall conduct periodic evalua-
17 tions of the funding, management, coordination, imple-
18 mentation, and activities of the Program, and shall report
19 not less frequently than once every two fiscal years to the
20 Committee on Science of the House of Representatives
21 and the Committee on Commerce, Science, and Transpor-
22 tation of the Senate on its findings and recommendations.
23 The first report shall be due within one year after the date
24 of enactment of this paragraph.

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

4 (4) in section 101(c)(1)(A), by striking “Pro-
5 gram or” and inserting “Program Component Areas
6 or”.

7 **SEC. 2. DEFINITIONS.**

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

10 (1) in paragraph (2), by inserting “and multi-
11 disciplinary teams of researchers” after “high-per-
12 formance computing resources”;

13 (2) in paragraph (3)—

14 (A) by striking “scientific workstations,”;

15 (B) by striking “(including vector super-
16 computers and large scale parallel systems)”;

17 (C) by striking “and applications” and in-
18 serting “applications”; and

19 (D) by inserting “, and the management of
20 large data sets” after “systems software”;

21 (3) in paragraph (4), by striking “packet
22 switched”;

23 (4) by striking “and” at the end of paragraph
24 (5);

