

## Union Calendar No. 16

110TH CONGRESS  
1ST SESSION

# H. R. 1068

[Report No. 110-40]

To amend the High-Performance Computing Act of 1991.

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### 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

MARCH 8, 2007

Committed to the Committee of the Whole House on the State of the Union  
and ordered to be printed

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## A BILL

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,*

3 **SECTION 1. HIGH-PERFORMANCE COMPUTING RESEARCH**

4 **AND DEVELOPMENT PROGRAM.**

5 Title I of the High-Performance Computing Act of  
6 1991 (15 U.S.C. 5511 et seq.) is amended—

1           (1) in the title heading, by striking “**AND**  
2           **THE NATIONAL RESEARCH AND EDU-**  
3           **CATION NETWORK**” and inserting “**RE-**  
4           **SEARCH AND DEVELOPMENT**”;

5           (2) in section 101(a)—

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

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

10          “(B) provide for research and development on,  
11          and demonstration of, technologies to advance the  
12          capacity and capabilities of high-performance com-  
13          puting and networking systems;

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

21          “(D) provide for efforts to increase software  
22          availability, productivity, capability, security, port-  
23          ability, and reliability;

24          “(E) provide for high-performance networks, in-  
25          cluding experimental testbed networks, to enable re-

1 search and development on, and demonstration of,  
2 advanced applications enabled by such networks;

3 “(F) provide for computational science and en-  
4 gineering research on mathematical modeling and al-  
5 gorithms for applications in all fields of science and  
6 engineering;

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

11 “(H) provide for educating and training addi-  
12 tional undergraduate and graduate students in soft-  
13 ware engineering, computer science, computer and  
14 network security, applied mathematics, library and  
15 information science, and computational science; and

16 “(I) provide for improving the security of com-  
17 puting and networking systems, including Federal  
18 systems, including research required to establish se-  
19 curity standards and practices for these systems.”;

20 (B) by striking paragraph (2) and redesign-  
21 ating paragraphs (3) and (4) as paragraphs  
22 (2) and (3), respectively;

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

25 (i) by striking subparagraph (B);

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

4                   (iii) by inserting before subparagraph  
5                   (D), as so redesignated by clause (ii) of  
6                   this subparagraph, the following new sub-  
7                   paragraphs:

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

11                  “(B) establish Program Component Areas that  
12                  implement the goals established under subparagraph  
13                  (A), and identify the Grand Challenges that the Pro-  
14                  gram should address;

15                  “(C) provide for interagency coordination of  
16                  Federal high-performance computing research, devel-  
17                  opment, networking, and other activities undertaken  
18                  pursuant to the Program;” and

19                  (iv) by inserting after subparagraph  
20                  (D), as so redesignated by clause (ii) of  
21                  this subparagraph, the following new sub-  
22                  paragraph:

23                  “(E) develop and maintain a research, develop-  
24                  ment, and deployment roadmap for the provision of

1 high-performance computing systems under para-  
2 graph (1)(C); and”;

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

5 (i) by striking “paragraph (3)(A)”  
6 and inserting “paragraph (2)(D)”;

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

9 “(A) provide a detailed description of the Pro-  
10 gram Component Areas, including a description of  
11 any changes in the definition of or activities under  
12 the Program Component Areas from the preceding  
13 report, and the reasons for such changes, and a de-  
14 scription of Grand Challenges supported under the  
15 Program;”;

16 (iii) in subparagraph (C), by striking  
17 “specific activities” and all that follows  
18 through “the Network” and inserting  
19 “each Program Component Area”;

20 (iv) in subparagraph (D), by inserting  
21 “and for each Program Component Area”  
22 after “participating in the Program”;

23 (v) in subparagraph (D), by striking  
24 “applies;” and inserting “applies; and”;

1                   (vi) by striking subparagraph (E) and  
2                   redesignating subparagraph (F) as sub-  
3                   paragraph (E); and

4                   (vii) in subparagraph (E), as so redesi-  
5                   gnated by clause (vi) of this subpara-  
6                   graph, by inserting “and the extent to  
7                   which the Program incorporates the rec-  
8                   ommendations of the advisory committee  
9                   established under subsection (b)” after  
10                  “for the Program”;

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

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

24                   “(A) progress made in implementing the Pro-  
25                   gram;

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

2           “(C) the balance between the components of the  
3 Program, including funding levels for the Program  
4 Component Areas;

5           “(D) whether the research and development un-  
6 dertaken pursuant to the Program is helping to  
7 maintain United States leadership in high-perform-  
8 ance computing and networking technology; and

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

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

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

23           (4) in subsection (c)(1)(A), by striking “Pro-  
24 gram or” and inserting “Program Component Areas  
25 or”.

1 **SEC. 2. DEFINITIONS.**

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

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

7 (2) in paragraph (3)—

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

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

11 (C) by striking “and applications” and in-  
12 serting “applications”; and

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

15 (3) in paragraph (4), by striking “packet  
16 switched”;

17 (4) by striking “and” at the end of paragraph  
18 (5);

19 (5) by striking the period at the end of para-  
20 graph (6) and inserting “; and”; and

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

23 “(7) ‘Program Component Areas’ means the  
24 major subject areas under which are grouped related  
25 individual projects and activities carried out under  
26 the Program.”.



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