118 Stat. 2400, which is classified principally to this subchapter. For complete classification of this Act to the Code, see Short Title note set out under section 5501 of this title and Tables.

CODIFICATION

This section was enacted as part of the American Super Computing Leadership Act of 2017 which comprises this subchapter, and not as part of the High-Performance Computing Act of 1991 which comprises this chapter.

AMENDMENTS

2018—Pars. (1) to (5). Pub. L. 115–246, § 304(b)(2)(A), (B), formerly § 304(a)(2)(A), (B), as renumbered by Pub. L. 117–167, added pars. (1) and (2), redesignated former pars. (2) to (4) as (3) to (5), respectively, and struck out former par. (1) which defined ''Center''. Former par. (5) redesignated (6).

Par. (6). Pub. L. 115–246, § 304(b)(2)(A), (C), formerly § 304(a)(2)(A), (C), as renumbered by Pub. L. 117–167, redesignated par. (5) as (6) and struck out '', acting through the Director of the Office of Science of the Department of Energy'' before period at end.

Statutory Notes and Related Subsidiaries

SHORT TITLE

This subchapter known as the ''American Super Computing Leadership Act of 2017'', see Short Title note set out under section 5501 of this title.

§ 5542. Department of Energy high-end computing research and development program

(a) In general

The Secretary shall—

(1) carry out a coordinated program across the Department of research and development (including development of software and hardware) to advance high-end computing systems; and

(2) develop and deploy high-end computing systems for advanced scientific and engineering applications.

(b) Program

The program shall—

(1) support both individual investigators and multidisciplinary teams of investigators;

(2) conduct research in multiple architectures;

(3) conduct research on software for high-end computing systems, including research on algorithms, programming environments, tools, languages, and operating systems for high-end computing systems, in collaboration with architecture development efforts;

(4) provide for sustained access by the research community in the United States to high-end computing systems and to Leadership Systems, including provision of technical support for users of such systems;

(5) support technology transfer to the private sector and others in accordance with applicable law; and

(6) ensure that the high-end computing activities of the Department of Energy are coordinated with relevant activities in industry and with other Federal agencies, including the National Science Foundation, the Defense Advanced Research Projects Agency, the National Nuclear Security Administration, the National Security Agency, the National Institutes of Health, the National Aeronautics and Space Administration, the National Oceanic and Atmospheric Administration, the National Institutes of Standards and Technology, and the Environmental Protection Agency.

(c) Leadership Systems facilities

(1) In general

As part of the program carried out under this subchapter, the Secretary shall establish and operate 1 or more Leadership Systems facilities to—

(A) conduct advanced scientific and engineering research and development using Leadership Systems; and

(B) develop potential advancements in high-end computing system hardware and software.

(2) Administration

In carrying out this subsection, the Secretary shall provide to Leadership Systems, on a competitive, merit-reviewed basis, access to researchers in United States industry, institutions of higher education, national laboratories, and other Federal agencies.

(d) Exascale Computing Program

(1) In general

The Secretary shall conduct a research program (referred to in this subsection as the ''Program'') for exascale computing, including the development of two or more exascale computing machine architectures, to promote the missions of the Department.

(2) Execution

(A) In general

In carrying out the Program, the Secretary shall—

(i) establish two or more National Laboratory partnerships with industry partners and institutions of higher education for the research and development of two or more exascale computing architectures across all applicable organizations of the Department;

(ii) conduct mission-related codesign activities in developing the exascale computing architectures under clause (i);

(iii) develop such advancements in hardware and software technology as are required to fully realize the potential of an exascale production system in addressing Department target applications and solving scientific problems involving predictive modeling and simulation and large scale data analytics and management;

(iv) explore the use of exascale computing technologies to advance a broad range of science and engineering; and

(v) provide, as appropriate, on a competitive, merit-reviewed basis, access for researchers in industries in the United States, institutions of higher education, National Laboratories, and other Federal agencies to the exascale computing systems developed pursuant to clause (i).

(B) Selection of partners

The Secretary shall select the partnerships with the computing facilities of the

Department under subparagraph (A) through a competitive, peer-review process.

(3) Codesign and application development

(A) In general

The Secretary shall—

(i) carry out the Program through an integration of applications, computer science, applied mathematics, and computer hardware architecture using the partnerships established pursuant to paragraph (2) to ensure that, to the maximum extent practicable, two or more exascale computing machine architectures are capable of solving Department target applications and broader scientific problems, including predictive modeling and simulation and large scale data analytics and management; and

(ii) conduct outreach programs to increase the readiness for the use of such platforms by domestic industries, including manufacturers.

(B) Report

The Secretary shall submit to Congress a report describing—

(i) how the integration under subparagraph (A) is furthering application science data and computational workloads across application interests, including national security, material science, physical science, cybersecurity, biological science, the Materials Genome and BRAIN Initiatives of the President, advanced manufacturing, and the national electric grid; and

(ii) the roles and responsibilities of National Laboratories and industry, including the definition of the roles and responsibilities within the Department to ensure an integrated program across the Department.

(4) Project review

(A) In general

The exascale architectures developed pursuant to partnerships established pursuant to paragraph (2) shall be reviewed through a project review process.

(B) Report

Not later than 90 days after September 28, 2018, the Secretary shall submit to Congress a report on—

(i) the results of the review conducted under subparagraph (A); and

(ii) the coordination and management of the Program to ensure an integrated research program across the Department.

(5) Annual reports

At the time of the budget submission of the Department for each fiscal year, the Secretary, in consultation with the members of the partnerships established pursuant to paragraph (2), shall submit to Congress a report that describes funding for the Program as a whole by functional element of the Department and critical milestones.

(Pub. L. 108–423, §3, Nov. 30, 2004, 118 Stat. 2400; Pub. L. 115–246, title III, §304(b)(3), formerly §304(a)(3), Sept. 28, 2018, 132 Stat. 3145, renumbered §304(b)(3), Pub. L. 117–167, div. B, title I, §10104(a)(1), Aug. 9, 2022, 136 Stat. 1433.)

Editorial Notes

REFERENCES IN TEXT

This subchapter, referred to in subsec. (c)(1), was in the original ''this Act'', meaning Pub. L. 108–423, Nov. 30, 2004, 118 Stat. 2400, which is classified principally to this subchapter. For complete classification of this Act to the Code, see Short Title note set out under section 5501 of this title and Tables.

CODIFICATION

This section was enacted as part of the American Super Computing Leadership Act of 2017 which comprises this subchapter, and not as part of the High-Performance Computing Act of 1991 which comprises this chapter.

AMENDMENTS

2018—Subsec. (a)(1). Pub. L. 115–246, §304(b)(3)(A), formerly §304(a)(3)(A), as renumbered by Pub. L. 117–167, substituted ''coordinated program across the Department'' for ''program''.

Subsec. (b)(2). Pub. L. 115–246, §304(b)(3)(B), formerly §304(a)(3)(B), as renumbered by Pub. L. 117–167, struck out '', which may include vector, reconfigurable logic, streaming, processor-in-memory, and multithreading architectures'' before semicolon at end.

Subsec. (d). Pub. L. 115–246, §304(b)(3)(C), formerly §304(a)(3)(C), as renumbered by Pub. L. 117–167, added subsec. (d) and struck out former subsec. (d) which related to the establishment of a High-End Software Development Center.

§ 5543. Repealed. Pub. L. 114–329, title I, § 105(u), Jan. 6, 2017, 130 Stat. 2985

Section, Pub. L. 108–423, §4, Nov. 30, 2004, 118 Stat. 2402, authorized appropriations for fiscal years 2005 to 2007.

§ 5544. Transferred

Editorial Notes

CODIFICATION

Section, Pub. L. 116–260, div. Z, title IX, §9008, Dec. 27, 2020, 134 Stat. 2600, which related to veterans' health initiative, was transferred to section 9462 of this title.

CHAPTER 82—LAND REMOTE SENSING POLICY

§ 5601. Transferred

Editorial Notes

CODIFICATION

Section, Pub. L. 102–555, §2, Oct. 28, 1992, 106 Stat. 4163, which related to findings, was transferred and is set out as a note under section 60101 of Title 51, National and Commercial Space Programs.

§ 5602. Repealed. Pub. L. 111–314, § 6, Dec. 18, 2010, 124 Stat. 3444

Section, Pub. L. 102–555, §3, Oct. 28, 1992, 106 Stat. 4164, provided definitions for this chapter. See section 60101 of Title 51, National and Commercial Space Programs.

SUBCHAPTER I—LANDSAT

§§ 5611 to 5615. Repealed. Pub. L. 111–314, § 6, Dec. 18, 2010, 124 Stat. 3444

Section 5611, Pub. L. 102–555, title I, §101, Oct. 28, 1992, 106 Stat. 4166, related to management of the Landsat