## SUBCHAPTER III—DEPARTMENT OF ENERGY HIGH-END COMPUTING REVITALIZATION

### § 5541. Definitions

In this subchapter:

**(1) Center**

The term ''Center'' means a High-End Software Development Center established under section 5542(d) of this title.

**(2) High-end computing system**

The term ''high-end computing system'' means a computing system with performance that substantially exceeds that of systems that are commonly available for advanced scientific and engineering applications.

**(3) Leadership System**

The term ''Leadership System'' means a high-end computing system that is among the most advanced in the world in terms of performance in solving scientific and engineering problems.

**(4) Institution of higher education**

The term ''institution of higher education'' has the meaning given the term in section 1001(a) of title 20.

**(5) Secretary**

The term ''Secretary'' means the Secretary of Energy, acting through the Director of the Office of Science of the Department of Energy.

(Pub. L. 108–423, § 2, Nov. 30, 2004, 118 Stat. 2400.)

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

**(a) In general**

The Secretary shall—

(1) carry out a program 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, which may include vector, reconfigurable logic, streaming, processor-in-memory, and multithreading 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) High-End Software Development Center**

**(1) In general**

As part of the program carried out under this subchapter, the Secretary shall establish at least 1 High-End Software Development Center.

**(2) Duties**

A Center shall concentrate efforts to develop, test, maintain, and support optimal al-