GOOD DEAL FOR SENIORS

(Ms. GINNY BROWN-WAITE of Florida asked and was given permission to address the House for 1 minute and to revise and extend her remarks.)

Ms. GINNY BROWN-WAITE of Florida. Mr. Speaker, I rise today because I understand that the minority leader is calling the Medicare prescription drug card ''a bad deal for seniors.''

With passage of the Medicare bill last year, hundreds of thousands of seniors can now take advantage of the voluntary prescription drug discount cards and finally have relief with their prescription drug costs.

Is giving them choice and control over their prescription drug costs a bad deal for seniors? I think not.

A CMS study showed that seniors using the prescription drug discount cards are saving between 46 and 92 percent on commonly used prescription drugs through the use of generic drugs.

□ 1030

Is cutting in half their prescription costs a bad idea for seniors? I think not. Furthermore, in my district, 21,000 of the poorest seniors will receive an additional $600 cash subsidy to help them with prescription costs. Is helping our Nation's deprived seniors with the thing that they need most a bad deal for seniors? I think not.

THE MIDDLE-CLASS SQUEEZE

(Ms. SOLIS asked and was given permission to address the House for 1 minute.)

Ms. SOLIS. Mr. Speaker, last month's disappointing job creation numbers demonstrate that our colleagues on the other side of the aisle have a lot of work to do to help improve this economy. The economy only created 112,000 jobs last month, less than half of what economists predicted. Over 90 percent of the new jobs that were created were found in the service sector area, and they pay less-than-average hourly wages. Many do not even provide health care benefits. In fact, many people in my own District have to work two and three part-time jobs just to make ends meet to put food on the table.

Wages are now at the lowest point in 2 years, and a typical family is now making $1,500 less than they were last year. Unemployment rates in my district in East Los Angeles and the San Gabriel Valley, I am not proud to say, they are about 10 percent, way above the national average. For Latino youth, youth that I represent, they are experiencing double-digit inflation. Right now, they are also unable to find part-time jobs this summer that they badly need.

Mr. Speaker, I ask that the Republican Party take a second look at our economy. Let us keep those jobs at home, and let us increase the wages of working families.

BUSH'S JUDICIAL APPOINTEES

(Mr. CONYERS asked and was given permission to address the House for 1 minute and to revise and extend his remarks.)

Mr. CONYERS. Mr. Speaker, the President of the United States is in Michigan today complaining of the lack of support he is getting for judicial appointments. I, as the ranking member on the Committee on the Judiciary, rise to point out to our President that the Senate has confirmed 97 percent of the appointees put forward by President Bush and that the vacancy rate on the Federal courts is only 5 percent, the lowest that it has been in 14 years.

The rest of my remarks concern why there is opposition, frequently from Senate Democrats but Democrats in the other body and sometimes Republicans against Ms. Priscilla Owen, Charles Pickering, Miguel Estrada, whose nomination was thankfully withdrawn, Carolyn Kuhl, William Pryor and Janice Rogers Brown.

ANNOUNCEMENT BY THE SPEAKER PRO TEMPORE

The SPEAKER pro tempore (Mr. MURPHY). Members are reminded to avoid improper references to the Senate.

JUNE JOBS NUMBERS

(Mr. PALLONE asked and was given permission to address the House for 1 minute.)

Mr. PALLONE. Last month, President Bush presided over an economy that created only 112,000 jobs, but we have to create 150,000 jobs just to keep up with population increases.

One would think this disappointing news would concern President Bush. Instead, Bush embraced the news, describing it as ''steady growth.'' The President also had the audacity to say our economy does not need ''boom or bust-type growth.''

When is President Bush going to realize that our economy desperately needs a boom; that the failed policies he has been touting over the last 3 years are not creating enough jobs to put millions of Americans back to work; that today's economy is benefiting the wealthiest Americans to the detriment of the middle class?

The economic record of both President Bush and congressional Republicans is an utter failure, and the President's statements show that he is also clearly out of touch with the economic realities that middle-class Americans presently face. Perhaps President Bush has been spending too much time hanging out with his wealthy friends to realize that middle-class Americans are struggling to make ends meet.

ANNOUNCEMENT BY THE SPEAKER PRO TEMPORE

The SPEAKER pro tempore. Pursuant to clause 8 of rule XX, the Chair will postpone further proceedings today on motions to suspend the rules on which a recorded vote or the yeas and nays are ordered, or on which the vote is objected to under clause 6 of rule XX.

Record votes on postponed questions will be taken later today.

HIGH-PERFORMANCE COMPUTING REVITALIZATION ACT OF 2004

Mrs. BIGGERT. Mr. Speaker, I move to suspend the rules and pass the bill (H.R. 4218) to amend the High-Performance Computing Act of 1991, as amended.

The Clerk read as follows:

H.R. 4218

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

SECTION 1. SHORT TITLE.

This Act may be cited as the ''High-Performance Computing Revitalization Act of 2004''.

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''; and

(4) by amending paragraphs (5) and (6) to read as follows:

''(5) 'Program' means the High-Performance Computing Research and Development Program described in section 101; and

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

SEC. 3. 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) the section heading, by striking ''**NATIONAL HIGH-PERFORMANCE COMPUTING**'' and inserting ''**HIGH-PERFORMANCE COMPUTING RESEARCH AND DEVELOPMENT**'';

(B) in subsection (a)—

(i) in the subsection heading, by striking ''NATIONAL HIGH-PERFORMANCE COMPUTING'' and inserting ''HIGH-PERFORMANCE COMPUTING RESEARCH AND DEVELOPMENT'';

(ii) by striking paragraphs (1) and (2) and inserting the following: ''(1) The President shall implement a High-Performance Computing Research and Development Program, which shall—

''(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 algorithms 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.'';

(iii) by redesignating paragraphs (3) and (4) as paragraphs (2) and (3), respectively;

(iv) in paragraph (2), as so redesignated by clause (iii) of this subparagraph—

(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 subclause (II) of this clause, 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 subclause (II) of this clause, 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

(v) in paragraph (3), as so redesignated by clause (iii) of this subparagraph—

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

(C) in subsection (b)—

(i) by redesignating paragraphs (1) through (5) as subparagraphs (A) through (E), respectively;

(ii) by inserting ''(1)'' after ''Advisory Committee.—'';

(iii) in paragraph (1)(C), as so redesignated by clauses (i) and (ii) of this subparagraph, by inserting '', including funding levels for the Program Component Areas'' after ''of the Program'';

(iv) in paragraph (1)(D), as so redesignated by clauses (i) and (ii) of this subparagraph, by striking ''computing'' and inserting ''high-performance computing and networking''; and

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

''(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.''; and

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

(3) by striking sections 102 and 103.

SEC. 4. AGENCY ACTIVITIES.

Title II of the High-Performance Computing Act of 1991 (15 U.S.C. 5521 et seq.) is amended—

(1) by amending subsection (a) of section 201 to read as follows:

''(a) GENERAL RESPONSIBILITIES.—As part of the Program described in title I, the National Science Foundation shall—

''(1) support research and development to generate fundamental scientific and technical knowledge with the potential of advancing high-performance computing and networking systems and their applications;

''(2) provide computing and networking infrastructure support to the research community in the United States, including the provision of high-performance computing systems that are among the most advanced in the world in terms of performance in solving scientific and engineering problems, and including support for advanced software and applications development, for all science and engineering disciplines; and

''(3) support basic research and education in all aspects of high-performance computing and networking.'';

(2) by amending subsection (a) of section 202 to read as follows:

''(a) GENERAL RESPONSIBILITIES.—As part of the Program described in title I, the National Aeronautics and Space Administration shall conduct basic and applied research in high-performance computing and networking, with emphasis on—

''(1) computational fluid dynamics, computational thermal dynamics, and computational aerodynamics;

''(2) scientific data dissemination and tools to enable data to be fully analyzed and combined from multiple sources and sensors;

''(3) remote exploration and experimentation; and

''(4) tools for collaboration in system design, analysis, and testing.'';

(3) in section 203—

(A) by striking subsections (a) through (d) and inserting the following:

''(a) GENERAL RESPONSIBILITIES.—As part of the Program described in title I, the Secretary of Energy shall—

''(1) conduct and support basic and applied research in high-performance computing and networking to support fundamental research in science and engineering disciplines related to energy applications; and

''(2) provide computing and networking infrastructure support, including the provision of high-performance computing systems that are among the most advanced in the world in terms of performance in solving scientific and engineering problems, and including support for advanced software and applications development, for science and engineering disciplines related to energy applications.''; and

(B) by redesignating subsection (e) as subsection (b);

(4) by amending subsection (a) of section 204 to read as follows:

''(a) GENERAL RESPONSIBILITIES.—As part of the Program described in title I—

''(1) the National Institute of Standards and Technology shall—

''(A) conduct basic and applied metrology research needed to support high-performance computing and networking systems;

''(B) develop benchmark tests and standards for high-performance computing and networking systems and software;

''(C) develop and propose voluntary standards and guidelines, and develop measurement techniques and test methods, for the interoperability of high-performance computing systems in networks and for common user interfaces to high-performance computing and networking systems; and

''(D) work with industry and others to develop, and facilitate the implementation of, high-performance computing applications to solve science and engineering problems that are relevant to industry; and

''(2) the National Oceanic and Atmospheric Administration shall conduct basic and applied research on high-performance computing applications, with emphasis on—

''(A) improving weather forecasting and climate prediction;

''(B) collection, analysis, and dissemination of environmental information; and

''(C) development of more accurate models of the ocean-atmosphere system.''; and

(5) by amending subsection (a) of section 205 to read as follows:

''(a) GENERAL RESPONSIBILITIES.—As part of the Program described in title I, the Environmental Protection Agency shall conduct basic and applied research directed toward advancement and dissemination of computational techniques and software tools for high-performance computing systems with an emphasis on modeling to—

''(1) develop robust decision support tools;

''(2) predict pollutant transport and the effects of pollutants on humans and on ecosystems; and

''(3) better understand atmospheric dynamics and chemistry.''.

SEC. 5. SOCIETAL IMPLICATIONS OF INFORMATION TECHNOLOGY.

In carrying out its programs on the social, economic, legal, ethical, and cultural implications of information technology, the National Science Foundation shall support research into the implications of computers (including both hardware and software) that

would be capable of mimicking human abilities to learn, reason, and make decisions.

SEC. 6. ASTRONOMY AND ASTROPHYSICS ADVISORY COMMITTEE.

(a) AMENDMENTS.—Section 23 of the National Science Foundation Authorization Act of 2002 (42 U.S.C. 1862n–9) is amended—

(1) by striking ''and the National Aeronautics and Space Administration'' each place it appears in subsections (a) and (b) and inserting '', the National Aeronautics and Space Administration, and the Department of Energy'';

(2) in subsection (b)(3), by inserting ''the Secretary of Energy,'' after ''the Administrator of the National Aeronautics and Space Administration,'';

(3) in subsection (c)—

(A) by striking ''5'' in each of paragraphs (1) and (2) and inserting ''4'';

(B) by striking ''and'' at the end of paragraph (2);

(C) by redesignating paragraph (3) as paragraph (4), and in that paragraph by striking ''3'' and inserting ''2''; and

(D) by inserting after paragraph (2) the following new paragraph:

''(3) 3 members selected by the Secretary of Energy; and''; and

(4) in subsection (f), by striking ''the advisory bodies of other Federal agencies, such as the Department of Energy, which may engage in related research activities'' and inserting ''other Federal advisory committees that advise Federal agencies which engage in related research activities''.

(b) EFFECTIVE DATE.—The amendments made by subsection (a) shall take effect on March 15, 2005.

SEC. 7. REMOVAL OF SUNSET PROVISION FROM SAVINGS IN CONSTRUCTION ACT OF 1996.

Section 14(e) of the Metric Conversion Act of 1975 (15 U.S.C. 2051(e)) is repealed.

The SPEAKER pro tempore. Pursuant to the rule, the gentlewoman from Illinois (Mrs. BIGGERT) and the gentleman from Tennessee (Mr. DAVIS) each will control 20 minutes.

The Chair recognizes the gentlewoman from Illinois (Mrs. BIGGERT).

GENERAL LEAVE

Mrs. BIGGERT. Mr. Speaker, I ask unanimous consent that all Members may have 5 legislative days within which to revise and extend their remarks and include extraneous material on H.R. 4218, as amended, the bill now under consideration.

The SPEAKER pro tempore. Is there objection to the request of the gentlewoman from Illinois?

There was no objection.

Mrs. BIGGERT. Mr. Speaker, I yield myself such time as I may consume.

Mr. Speaker, when we think of how computers affect our lives, we probably think of the work we do on our office desktop machines or maybe the Internet surfing we do in our spare time. We do not normally think of the enormous contribution that supercomputers, also called high-performance computers, make to the world around us.

These powerful machines are used in the development of pharmaceuticals, in modeling the Earth's climate, and in applications critical to ensuring our national and homeland security. They also help ensure our economic competitiveness. In a recent Subcommittee on Energy hearing, we heard how supercomputers can help companies anticipate how new products will behave in different environments using simulations that are called ''virtual prototyping.'' These approaches help companies increase the speed to market for new products.

High-performance computers also are central to maintaining U.S. leadership in many scientific fields. Computational science complements theory and experimentation in fields such as plasma physics and fusion, astrophysics, nuclear physics, and genomics.

The top computer in the world today, the Earth Simulator, is not in the United States. It is in Japan. Some experts claim that Japan was able to produce the Earth Simulator, a computer far ahead of American machines, because the U.S. had taken an overly cautious and conventional approach to computing R&D.

Beginning in the 1990s, the U.S. focused on a single architecture for high-performance computing and emphasized the use of commercially available components over custom-made components. In hindsight, we see that this approach has meant lost opportunities. Japan's Earth Simulator is an example of a road not taken.

The U.S. is still a leader in supercomputing. In fact, 10 of the top 20 most powerful computers in the world today are in the United States. Even so, the Earth Simulator is nearly three times as fast as the most powerful computer in the United States, the ASCI-Q computer at Los Alamos National Laboratory.

The bill we are considering today on the floor, H.R. 4218, will ensure that America remains a leader in the development and use of supercomputers.

To achieve this aim, the bill does four things.

First, it requires that Federal agencies provide the U.S. research community access to the most advanced high-performance computing systems and technical support for their users.

Second, there is more to supercomputing than building big machines. That is why the bill requires Federal agencies to support all aspects of high-performance computing for scientific and engineering applications.

Third, the bill requires the White House Office of Science and Technology Policy to direct an interagency planning process to develop and maintain a research, development and deployment roadmap for the provision of high-performance computing resources for the U.S. research community.

The original legislation that the bill amends, the High-Performance Computing Act of 1991, gave rise to an interagency planning process that has lost the vitality it once had. This provision will help ensure a robust planning process so that our national high-performance computing effort is not allowed to lag in the future.

Finally, the bill clarifies the missions of each of the Federal agencies that have a role in developing or using high-performance computing.

Mr. Speaker, at a full committee hearing on May 13, Dr. John Marburger of the White House Office of Science and Technology Policy communicated the administration's support for this bill. The bill is consistent with a report written by the High End Computing Revitalization Task Force and released by OSTP on the day of the hearing.

Mr. Marburger and the Bush administration recognize that we cannot imagine the kinds of problems that these supercomputers of tomorrow will be able to resolve, but we can imagine the kind of problems we will have if we fail to provide researchers in the United States with the computing resources they need to remain world class.

This bill will guide Federal agencies and provide a needed support to high-performance computing and its user communities. Our Nation's scientific enterprise, and our economy, will be stronger for it. I urge my colleagues to support this bill.

Mr. Speaker, I reserve the balance of my time.

Mr. DAVIS of Tennessee. Mr. Speaker, I yield myself such time as I may consume.

I would like to encourage my colleagues to vote in favor of H.R. 4218, the High-Performance Computing Revitalization Act of 2004, which the gentlewoman from Illinois (Mrs. BIGGERT) and I have introduced. I also want to thank the gentlewoman from Illinois (Mrs. BIGGERT) for her work in developing this legislation.

H.R. 4218 amends the High-Performance Computing Act of 1991, which established a major Federal research and development program in computing and networking that now involves seven agencies and is funded at about $2 billion per year. This bill seeks to reverse a gradual weakening of the planning mechanisms for the research and development program established by the 1991 act.

High-performance computing and communications technology is key to the Nation's economic competitiveness and security, and it is important to prioritize and effectively coordinate activities among the performing agencies. This bill requires formal biennial reviews of the interagency program by the President's Information Technology Advisory Committee in order to provide outside advice for sharpening program priorities and improving program implementation.

H.R. 4218 also attempts to focus more effort by the interagency program on high-end computing. The key requirement is for the Office of Science and Technology Policy to develop and maintain a roadmap for developing and deploying high-end systems necessary to ensure that the U.S. research community has sustained access to the most capable computing systems. In addition, NSF is explicitly required to provide for access by researchers to such computing systems. These requirements are designed to ensure the research community has access to the

most powerful computing systems in the world.

Mr. Speaker, the interagency research program launched in 1991, as I have said, has largely been a great success. It has helped provide the computing and networking infrastructure required to support leading-edge research and to drive technology information forward for the benefit of all of us and society at large.

H.R. 4218 will serve to strengthen the research program and deserves swift, favorable passage. Again, I ask my colleagues for their support of this bill.

Mr. Speaker, I reserve the balance of my time.

Mrs. BIGGERT. Mr. Speaker, I yield such time as he may consume to the gentleman from New York (Mr. BOEHLERT), the distinguished chairman of the Committee on Science.

Mr. BOEHLERT. Mr. Speaker, I thank the gentlewoman for yielding this time, and I want to rise in strong support of H.R. 4218. I want to particularly thank the gentlewoman from Illinois (Mrs. BIGGERT) for the leadership she has provided and to the gentleman from Tennessee (Mr. DAVIS) in being her partner in this enterprise. This is an important measure, and I proudly rise to give my unqualified support for it.

This measure flows from two simple, unarguable premises: The computing industry has become a fundamental building block of our entire economy, and computing has become an indispensable part of conducting research and development here at home.

That means that it is incumbent on the Federal Government to ensure that it is doing everything possible to strengthen the long-term competitiveness of the computing industry and to ensure that our Nation's researchers have access to the best computers in the world.

The bill is designed to accomplish those two goals by strengthening our existing interagency programs on high-performance computing. Frankly, in recent years, we have taken our eye off the ball a little bit; and as a result, the Japanese now have the fastest computer in the world. Not to worry, we are being challenged. They are breathing down our neck, but we are preparing to respond; and we have to reverse that trend. They have one machine; we have many machines. We are clearly number one in the world, and we are determined to maintain that position.

The administration knows that, and led by Dr. Jack Marburger at the White House Office of Science and Technology Policy, the administration is increasing its focus on this area and issued a new report laying out how it plans to do so.

□ 1045

This legislation will give additional impetus to those efforts. The bill should ensure that Federal agencies coordinate their efforts both to fund R&D on computing hardware and software and to fund access to the best computers.

I will never forget the testimony I heard some 20 years ago as a junior member of the Committee on Science, that is, before the government began its supercomputing initiative. That testimony came from Nobel Laureate Ken Wilson, who was then at Cornell. He said to us, and this was in the early 1980s, he said to us that he and his students had to go overseas to get the computing resources they needed. We were determined that that would never happen again, and therein was born the supercomputer initiative in America.

In the 1990s, we all know this, in the 1990s we enjoyed unprecedented growth in our economy, for 10 years, quarter-after-quarter, year-after-year growth in the economy, and more jobs being created. The Information Age was upon us. And because of what the government was doing, what we were investing in in supercomputing technology, that was largely made possible.

Mr. Speaker, I urge my colleagues to support this urgently needed, carefully targeted bill that will make sure that the U.S. builds and American scientists can use the best computers in the world. These days, that is a necessary condition for the long-term success of our economy, and we are determined to guarantee the long-term success of our economy.

So to the chairwoman, the gentlewoman from Illinois (Mrs. BIGGERT), and the gentleman from Tennessee (Mr. DAVIS), I commend you both for the outstanding cooperation that was evidenced in developing this measure. I particularly want to thank the gentlewoman from Illinois (Mrs. BIGGERT) for the leadership she has provided. Time after time she has proven that she is there with a solution to the problem. We do not have a problem that we cannot tackle and overcome, and she has proven it once again.

So I urge my colleagues to register their strong support for H.R. 4218.

Mr. DAVIS of Tennessee. Mr. Speaker, I continue to reserve the balance of my time.

Mrs. BIGGERT. Mr. Speaker, I yield 4 minutes to the gentleman from Michigan (Mr. SMITH), the chairman of the Subcommittee on Research of the House Committee on Science.

Mr. SMITH of Michigan. Mr. Speaker, it should concern everyone who has followed technological developments, especially in recent years, to see the United States is falling behind. It has been said a couple of times that Japan's Earth Simulator Computer is now faster and more efficient than anything in the United States.

I congratulate the gentlewoman from Illinois (Mrs. BIGGERT) for her initiative in sponsoring and moving this legislation through the legislative process. Let it be said that everyone agrees that over the last 30 years invention and innovation have been among the greatest driving forces behind the tremendous technological advances that we have had and the ability of the United States to develop high-quality products and the way to produce those products that can be competitive in a world market.

I think at the forefront of our innovation has been the development of these supercomputers. They have allowed us to make new discoveries, design new technologies, and develop new products more quickly and at much lower cost than we would have thought imaginable even 10 years ago.

As chairman of the Subcommittee on Research for the last several years, I have been proud to support our Nation's efforts in these and other important scientific endeavors, and I have been especially interested and strongly supportive of continuous investment, financial and otherwise, of all stages of our tech advancement, from the initial investigation of new concepts down to technology demonstrations and products.

What has also been made clear in recent years is that government alone cannot and probably should not be the sole contributor to America's scientific endeavors. Continuous investment is needed in all contributing sectors of society, certainly from universities to national laboratories to private sector corporations to vendors. That falls back on a goal that we must also have in this country, and that is capable scientists that are going to make invention and innovation happen.

I would just like to bring to my colleagues' attention what a high-tech supercomputer is. According to an April 2003 report, IBM is now looking to develop, in conjunction with Lawrence Berkeley National Laboratory and the Argonne National Laboratory, a system that will perform at twice the level of the Earth Simulator, hopefully by 2005.

In addition, the Department of Energy has contracted with IBM to develop two systems, the ASCI Purple and Blue Gene program that together, listen to this, will be able to perform 460 trillion calculations per second. The Earth Simulator's peak capacity is 40 trillion operations per second. So we are moving ahead, and this legislation is going to help assure that we move ahead, that the United States stay in control.

This is important legislation that will not only help our Nation remain competitive with countries such as Japan, but will help the United States to maintain its leadership in tech advancement. So, again, I thank our Committee on Science chairman and ranking member, and I thank the gentlewoman from Illinois (Mrs. BIGGERT).

Mr. DAVIS of Tennessee. Mr. Speaker, I continue to reserve the balance of my time.

Mrs. BIGGERT. Mr. Speaker, I yield 3 minutes to the gentleman from Tennessee (Mr. WAMP), who is a member of the Subcommittee on Energy and Water Development of the Committee

on Appropriations, and has been a great help to the scientific community, the Department of Energy, and all its programs, and especially the Office of Science. So we appreciate all his hard work on behalf of them.

(Mr. WAMP asked and was given permission to revise and extend his remarks.)

Mr. WAMP. Mr. Speaker, I certainly appreciate the gentlewoman's leadership. I do come as an appropriator today to say thanks to the authorization committee, and thanks to the chairman of the Committee on Science, the gentleman from New York (Mr. BOEHLERT); the Chair of the subcommittee, the gentlewoman from Illinois (Mrs. BIGGERT); the ranking members, the gentleman from Tennessee (Mr. GORDON) and the gentleman from Tennessee (Mr. DAVIS).

Mr. Speaker, I am proud that Tennesseeans stand together in a bipartisan way today. Of course, I represent the Oak Ridge National Laboratory in Oak Ridge, Tennessee, and Oak Ridge is a lead laboratory for high-speed computing. So I come with great excitement today because our Subcommittee on Energy and Water Development of the Committee on Appropriations has actually gone beyond what we were authorized to do or what the administration asked for on supercomputing, because our chairman, the gentleman from Ohio (Mr. HOBSON), believes, as we believe, that this is the seed corn for the future; that we must make these investments if we are to have a robust economy and a very high quality of life and experience the growth that this country deserves and, frankly, we should expect. And it comes with scientific investment.

Basic research, for years, through the physical sciences, led to the breakthroughs that we enjoy today. Space had a lot to do with it. And then the life sciences of the last 15 years, as we tried to get our arms around diabetes and Alzheimer's and Parkinson's; and so we invested heavily in life sciences. But there is a whole new field that is part of the physical science arena called high-speed computing, computer simulation and modeling. We are going to be able to do things with computers that we will not even need a laboratory for, because we can simulate with the use of high-speed computing. It is a whole new field.

I will tell my colleagues that as we invest in it, our economy will grow and the budget will come closer to balance because we are making these investments. We are not going to balance the budget in the world we live in today by cutting spending, because there are too many needs. But if we grow the economy with these kinds of investments, we can balance the budget.

This is critical. The authorizers have stepped up. This is real good for America. It is great for our laboratory systems. And I want to give a lot of credit, while I have the floor, to the DOE Office of Science, because this administration is way out in front on these investments.

This is the right thing to do. This is where the Congress comes together in the very best way to make investments not for next year necessarily, but for the next generation. They will reap a high return.

So congratulations to the gentlewoman from Illinois (Mrs. BIGGERT). I thank her for her leadership in all science investment for our country. She is helping us on the Committee on Appropriations expand the fence so we can fund these necessary investments. Without the authorization, without the statutory framework that the gentlewoman is establishing today, and the many other times that she has brought quality legislation to this floor, we cannot fund it. With this, we can fund it and then some.

So I thank all involved very much.

Mr. DAVIS of Tennessee. Mr. Speaker, I yield myself such time as I may consume to applaud the efforts of the chairman, the gentleman from New York (Mr. BOEHLERT); the subcommittee chairman, the gentlewoman from Illinois (Mrs. BIGGERT); certainly the gentleman from Tennessee (Mr. GORDON), the ranking member on the Committee on Science, for their work and effort in being sure this legislation came to the committee and then was presented today.

Mr. Speaker, I have no further requests for time, and I yield back the balance of my time.

Mrs. BIGGERT. Mr. Speaker, I yield myself such time as I may consume and, in closing, I want to recognize the bill's chief lead sponsor along with me, the gentleman from Tennessee (Mr. DAVIS), and thank the other cosponsors of this important legislation, including the distinguished chairman of the Committee on Science, the gentleman from New York (Mr. BOEHLERT), along with the gentleman from Tennessee (Mr. GORDON), the gentleman from Illinois (Mr. JOHNSON), the gentleman from Michigan (Mr. EHLERS), the gentlewoman from California (Ms. WOOLSEY), and the gentleman from Michigan (Mr. SMITH). I would thank them all for their support. And I would also have to thank the Committee on Science staff, the majority and the minority, for their hard work.

I also would like to thank the chairman, the gentleman from New York (Mr. BOEHLERT) for holding a full Committee on Science hearing this past May to consider this legislation. At this very successful hearing, the committee received very positive feedback on the bill from the experts on high-performance computing. That is also the hearing where Dr. Marburger, Director of the White House Office of Science and Technology Policy, communicated the administration's support for the bill.

As I said earlier, we must commit to providing sustained support for high-performance computers at our Federal civilian science agencies. Our Nation's scientific enterprise and our economy will be the stronger for that.

Mr. HOLT. Mr. Speaker, I would like to particularly emphasize the importance of high-performance computing in the area of fusion energy science, an area where I have personal experience from my work at the Princeton Plasma Physics Laboratory. Fusion offers the promise of abundant, safe, environmentally attractive energy for the U.S. and the world. The advances in computing over the last decade have revolutionized fusion science at Princeton and elsewhere. Previously scientists made calculations without computers for simplified situations; now they can take into account the details of real experimental conditions.

Previously scientists could only make crude estimates of how for example turbulence in fusion fuel could cool the plasma lower than the very high temperatures needed for fusion; now they can calculate this process in detail. As a result the agreement between experiment and theory has improved dramatically.

A decade or so ago, theoretical estimates could easily differ from experimental measurements by factors of 10 to 100, giving rise to heated scientific debate. How the debate is just as scientific and just as heated, but the argument is about factors like 1.5 or 2—a dramatic difference.

Furthermore, this scientific understanding has led to techniques to quell the turbulent mixing and allow the fusion fuel to get much hotter, producing more fusion energy High-performance computing together with advanced experimental techniques, has truly revolutionized fusion energy science.

Even with these recent advances, there is still much more to be learned about fusion systems through high-performance computing, and H.R. 4218 will help to make that possible. Fusion scientists need to combine all of the individual calculations of physical effects, which have been combined into an integrated simulation model that handles all of the different aspects of a fusion system—all at the same time. Such a model will allow fusion researchers to predict in detail the behavior of complete fusion systems and will allow them to design the cost-effective power plans that will be need in the future.

This is truly a grand challenge that requires the level of high performance computing envisioned in H.R. 4218. It is also a grand challenge for humanity. Recent events have certainly reminded us that we need the abundant, safe and clean power that fusion can provide. Thus I strongly support H.R. 4218 for the advances it will produce in fusion energy science, as well as elsewhere in American science.

Mrs. BIGGERT. Mr. Speaker, I have no further requests for time, and I yield back the balance of my time.

The SPEAKER pro tempore (Mr. MURPHY). The question is on the motion offered by the gentlewoman from Illinois (Mrs. BIGGERT) that the House suspend the rules and pass the bill, H.R. 4218, as amended.

The question was taken; and (two-thirds having voted in favor thereof) the rules were suspended and the bill, as amended, was passed.

A motion to reconsider was laid on the table.