



SC07 Facts

Overall Conference

- This is the 19th in a series of conferences devoted to high performance computing, networking, storage and analysis.
- More than 8,000 people attended last year's conference in Tampa. Attendance is expected to be over 9,000, with over 1,000 first-time attendees.
- The SC conference series is an entirely volunteer effort. This year, more than 500 volunteers have offered their time and expertise, including about 100 student volunteers.
- Every conference takes three years of planning.
- The opening conference session will be archived and available through the ACM Digital Library.
- The budget for SC07 is about \$5.8 million.
 - The conference will provide more than \$360,000 to the ACM and IEEE/CS to support other activities.
 - The conference is non-profit and does not carry over money. However when the conference is successful, money is made available to future conferences as proposals submitted to the sponsoring societies.
- The conference will present the following awards: Seymour Cray Computer Science and Engineering Award, Sidney Fernbach Memorial Award, Conference Best Paper, Best Student Paper, and Best Poster, Gordon Bell Prize, Bandwidth Challenge, Storage Challenge, Analytics Challenge, ACM Student Research Competition (SRC) and a High Performance Computing Ph.D. Fellowship Program.
- A showcase event this year will be the SC07 Cluster Challenge, in which teams of next-generation high performance computing talent harness the incredible power of current-generation cluster hardware. The challenge will bring together an international field of teams united by their "need for speed" and their eagerness to earn the top prize.
- Featured at SC07 will be a Disruptive Technologies initiative, which will take the Exotic Technologies Initiative started in 2006 to a new level. Through the Disruptive Technologies initiative, SC07 will examine those technologies that may significantly change the world of HPC in the next five to 15 years.

Technical Program

- Astrophysicist George Smoot, co-recipient of the 2006 Nobel Prize in Physics, will speak at the conference.
- A new feature at SC07 will be the Doctoral Research Showcase. This session will provide a venue for Ph.D. students graduating with the next year to present short summaries of their work. Because of enormous response, a second session of this new event has been added to the program.
- The technical program consists of 54 Technical Papers, four Gordon Bell Prize Papers, 25 Tutorials, four plenary speakers, 14 Masterworks presentations, seven panel sessions, 49 Birds of a Feather sessions, 11 independently planned Workshops, 39 Posters, six ACM Student Research Competition posters and one keynote address.
- An interactive Masterworks session with leading CTOs and CIOs will explore the strategic value of high performance computing in giving businesses a competitive edge.
- The Technical Papers represent hundreds of thousands of hours of research described by more than 250 authors in 268 paper submissions. Papers are peer reviewed by a committee of 232 experts from academia, industry and government labs. They selected the 54 best papers to be presented at SC07 (a 20 percent acceptance rate).
 - Four papers are entered as finalists for the Gordon Bell Prize to recognize outstanding achievement in high performance computing.
 - Five papers will vie for the Best Student Paper Award and an additional five are nominated for SC07 Best Paper.
- At least 26 external organization meetings will be held in conjunction with SC07.
- At least 3,300 people are expected to register for the technical program after record-breaking registration last year.
- More than 800 people are expected to register for the tutorials program after record-breaking registration last year.

Masterworks

SC07 collaborated with the Council on Competitiveness to bring leaders of industry to the conference to discuss the impacts of HPC on everything from Hollywood movies and risk management to the development of automobiles and home appliances. Fourteen 45-minute Masterwork sessions will be held Tuesday, Nov. 13 – Thursday, Nov. 15. Masterworks will culminate with a roundtable discussion exploring the strategic value of HPC and strategies for using high-end computing to give businesses a competitive edge. Panelists will be Nancy Stewart, Walmart senior vice president and CTO; Kevin Humphries, senior vice president of technology systems, FedEx; Anna Ewing, executive vice president of operations and technol-

Disruptive Technologies

This feature of the SC07 technical program looks at the future and those innovations, products and services that could eventually overturn the dominant technology or product in the market and reshape the HPC world in the next five to 15 years. Disruptive Technologies will include:

- Two panel sessions that will examine the potential for disruptions in HPC processors, memory, interconnects and storage technologies;

A competitively selected exhibit, which will showcase, quantum computing, CMOS photonics, carbon nanotube memory, and software for processors with more than 100 cores.

Education

The SC07 Education Program helps undergraduate faculty and high school teachers integrate computational science, scientific computing, high performance computing and grid computing into the curriculum. The program at SC07 will launch a new program of continuous support and interaction with educators that will last three years. The program runs Saturday, Nov. 10 – Tuesday, Nov. 13. A student program runs Sunday, Nov. 11 – Thursday, Nov. 15. Other facts about Education Program:

- SC07 will have 130 Education Program participants from the U.S. and abroad. They will represent minority serving institutions, two- and four-year colleges and universities, and research universities. The participants span all fields of study.
- More than 30 instructors and support staff from high schools, colleges, foundations, and vendors work together to provide a rich learning experience for the participants.
- Integral to the program is its effort to reach schools that serve students with physical and learning challenges through the Physical and Learning Challenges Program.
- Awards will be given in three categories to teachers and faculty who are making strides in using computational methods and resources in education.
- The program is ongoing; during the summer, 11 hands-on workshops were held across the U.S. to address the use of computational science and cyberinfrastructure in education.
- The Education Program receives significant support from the ACM, the IEEE/Computer Society, TeraGrid, the National Computational Science Institute, the National Science Digital Library, Intel, and other organizations.

Broader Engagement Initiative

The SC conference series is committed to broadening engagement in the conference among groups that have traditionally been underrepresented in high performance computing and related fields, and to collaborating with organizations working to diversify the computing workforce. The Broader Engagement (BE) Initiative provides a number of opportunities for these new conference participants. The BE committee includes more than 20 people, representing national laboratories, public and private universities (including Minority Serving Institutions), the National Science Foundation, and private industry. In 2007, the BE Initiative will:

- Bring at least 40 participants to the conference through grants that cover technical program registration and travel expenses. Priority for BE grants is given to African Americans, Hispanics, Native Americans, Native Alaskans, and other Indigenous People, and women.
- Provide guidance and assistance to BE Initiative first-time attendees through a kiosk staffed by volunteers who can advise on technical sessions and networking events to attend.
- Launch a mentorship program that pairs BE Initiative participants with experienced professionals who can offer support as they build their careers and will encourage their continued participation in the SC conference.

Exhibits

A total of 130,400 square feet of net exhibit space has been sold for SC07. Facts about the exhibition include:

- Area is 300,700 square feet (exhibit hall and pre-function space).
- As of November 1, SC07 had 317 exhibitors:
 - 119 research exhibitors
 - 198 industry exhibitors
- There are 44 first-time exhibitors (38 industry, 6 research)
- The Exhibitor Forum - which showcases exhibitor information, innovations and implementations will include 43 sessions over three days on topics ranging from petascale computing to mass storage to the data center of tomorrow.

SCinet

- SCinet is the most powerful advanced technology network ever built on site to support a conference.
- The total SCinet bandwidth exceeds that of most countries and is estimated to be about 200 Gigabits per second (Gb/s) at this conference, or about 2,000 times greater than the average home cable modem.
- SCinet is architected to model real life regional networks, with distributed NOCs serving the role of cities. This may be the most complicated routing problem ever dealt with at these data rates.
- SCinet is expected to use as much as 48 miles of fiber, which will be installed in the convention center by SCinet volunteers.
- The SC07 wireless infrastructure will be the most advanced and largest conference implementation known.
- SCinet uses advanced Intrusion Detection Systems operating at 40 Gb/s to monitor the network.
- Over 56 institutions and companies participate in creating SCinet, donating staff time and equipment.

Bandwidth Challenge

- Bandwidth Challenge – Seven teams of top researchers from around the world will compete in the SC07 Bandwidth Challenge to make the most effective use of the conference's high bandwidth, 10 Gb/s wide area network links. The teams will access supercomputing power from remote locations and integrate far-flung supercomputing, storage and visualization resources across high speed networks.
- Force10 Networks® is providing the high-density 10 Gigabit Ethernet switch for the Bandwidth Challenge and Qwest Communications® is generously providing a monetary prize for the winning entry. The data throughput amounts will be verified using high performance monitoring gear from Spirent Communications®, via network taps provided by Net Optics®.