

SUPERCOMPUTING IN PENNSYLVANIA

With Commonwealth of Pennsylvania support, PSC provides education, consulting, advanced network access and computational resources to scientists and engineers across the state.

Twenty Years of Leadership (1986-2006)

On June 16, leaders from industry, universities and government gathered to celebrate PSC's 20th anniversary. Established in 1986, PSC has become one of the world's leading institutions in high-performance computing and communications and a catalyst for high-technology development in Pennsylvania.

One of PSC's strengths has been its affiliation with both of western Pennsylvania's major research universities. President Jerry Cohen of Carnegie Mellon and Chancellor Mark Nordenberg of the University of Pittsburgh were on hand to help mark the occasion. Both commented on PSC's support for business and economic growth.

"This region's premiere partnership is the one we have gathered to salute today — the Pittsburgh Supercomputing Center," said Nordenberg. "It leverages the complementary strengths of three very special institutions — Carnegie Mellon University, the University of Pittsburgh, and Westinghouse."

"Alcoa, PPG, and many other private companies from this region are partners with the PSC," said Cohen. "These companies talk about how the ability to use PSC and to be supported by PSC contributes to their competitiveness in the businesses that they pursue."

Aris Candris, senior vice president, nuclear services, represented Westinghouse Electric Company, which has partnered with PSC since its beginning and provides a home for PSC's supercomputers at Westinghouse Energy Center. "Over the years," said Candris, "we have used PSC systems to supplement our Westinghouse computing capabilities. We have performed very sophisticated structural analyses and other demanding computations associated with the design of nuclear fuel systems and nuclear power plant reactor pressure vessels." While Westinghouse's business has evolved in recent years, their E-business today is based on internet connectivity provided through PSC.



PSC executive director **Beverly Clayton** coordinates PSC's program of support for research and education in Pennsylvania.



Pennsylvania Governor Edward G. Rendell, speaking at PSC's 20-year anniversary celebration, remarked on PSC's importance in helping to build Pittsburgh's reputation as a high-tech center. "Today's world runs on information," said Rendell. "For two decades, this Center has served as a resource for local businesses and academic institutions."

With nearly 7,700 technology firms in the Pittsburgh region, he added, the industry represents more than 10 percent of the area's companies. These companies employ nearly 216,000 individuals and account for 17 percent of the region's workforce, generating \$10.4 billion in annual wages.



On October 3, **Beverly Clayton** accepted congratulations from **Pennsylvania Rep. Joe Markosek (D-25)**. On this date, the Pennsylvania House of Representatives adopted a resolution recognizing PSC for 20 years of service to the nation and state. Rep. Markosek, who represents Monroeville and surrounding areas, including the Westinghouse Energy Center where PSC houses its supercomputing systems, introduced the resolution. Thirty other western Pennsylvania representatives joined Markosek in sponsoring the resolution.

"It's fitting that we recognize the achievement of the Pittsburgh Supercomputing Center in advancing science and technology in Pennsylvania and in the country," said Markosek. "I'm proud that the Commonwealth has over the course of the past 20 years been able to sustain PSC with \$30 million of support that has helped to leverage \$380 million in support from federal agencies."



Support for High School Science

From June 19 to 23, PSC sponsored Computation and Science for Teachers (CAST), a workshop for science teachers in southwest Pennsylvania. Ten teachers from seven school districts completed the workshop, which is the first phase of a two-year program to incorporate computational tools into the high-school science curriculum. CAST was presented in conjunction with the Maryland Virtual High School project, with funding from the Grable Foundation, the Frick Teachers Alumnae Fund of the Buhl Foundation and NSF's Engaging People in Cyberinfrastructure program.

RESEARCH AT PENNSYLVANIA COLLEGES & UNIVERSITIES, 2005-2006

More than 370 Pennsylvania researchers at these institutions used 4.3 million processor hours on PSC resources.

- Bucknell University
- Cabrini College
- Carnegie Mellon University
- Drexel University
- Duquesne University
- Edinboro University of Pennsylvania
- Lehigh University
- Pennsylvania State University, All Campuses
- University of Pennsylvania
- University of Pittsburgh, All Campuses
- Ursinus College
- Villanova University
- Widener University

Research, Outreach & Training

Pittsburgh-based PPG Industries uses PSC systems for computational modeling in several aspects of its product lines as a global supplier of coatings, glass, fiberglass and chemicals. Medrad, Inc. in Indianola, Pennsylvania is collaborating with PSC and Carnegie Mellon to develop a novel method for safe removal of deep-vein blood clots. Through SC² (p. 8), Evergreene Technology Park in Greene County provides companies with access to PSC resources.

This year PSC presented the fifth in a series of annual technology-briefing days to staff from the Bechtel Bettis Atomic Power Laboratory in Pittsburgh. PSC consultants provided information on developing, managing and using a parallel distributed-computing environment.

In December 2005, PSC exhibited at the Annual Eastern Intergovernmental Technology Conference in Harrisburg, Pa. Groups who toured PSC included Science Bowl participants from Yough Area High School, students and teachers from the Elizabeth Forward School District and an Advanced Computing Machinery group from Bloomsburg College.

PSC's networking group over the past year has worked with several "K20" organizations — building collaborations among K-12 education and higher education with government and the private sector. PSC has conducted these outreach activities in collaboration with MAGPI, the Philadelphia-based network hub, leveraging their well-developed K20 program. To date, these efforts have focused on seven Intermediate Units in western Pennsylvania.