Bader Gives Keynote On Petascale Computing

(September 16, 2006) -- College of Computing Associate Professor David Bader gave an invited keynote on "Petascale Computing for Large-Scale Graph Problems" at the second international conference on High Performance Computing and Communications (HPCC '06) in Munich, Germany.

With the rapid growth in computing and communication technology, the past decade has witnessed a proliferation of powerful parallel and distributed systems, and an ever-increasing demand for practice of high performance computing and communication (HPCC). HPCC has moved into the mainstream of computing and become a key technology in determining future research and development activities in many academic and industrial branches, especially when the solution of large and complex problems must cope with very tight timing schedules.

In his keynote, Bader discusses several graph theoretic kernels for connectivity and centrality and how the features of petascale architectures will affect algorithm development, ease of programming, performance, and scalability. Graph theoretic problems are representative of fundamental kernels in traditional and emerging computational sciences such as chemistry, biology, and medicine, as well as applications in national security. However, they pose serious challenges for parallel machines due to non-contiguous, concurrent accesses to global data structures with low degrees of locality. Few parallel graph algorithms outperform their best sequential implementation due to long memory latencies and high synchronization costs.

The HPCC conference series provides a forum for engineers and scientists in academia, industry, and government to address all resulting profound challenges, and to present and discuss their new ideas, research results, applications, and experience on all aspects of high performance computing and communication.

In addition to three keynotes, the HPCC '06 conference held on September 13-15, included 95 peer-reviewed papers from 328 submissions, including papers from Europe, Asia and the Pacific, as well as North and South America. HPCC is emerging as the premier academic high-performance computing conference based in Europe. Last year's meeting was held in Sorrento (Naples), Italy.

For more information about HPCC '06, click here.