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Convey Computer™ Corporation Announces First Customer: University of California, San Diego

New Convey HC-1™ System to Boost Performance of Bioinformatics Application

AUSTIN, TX (November 17, 2008) – Convey Computer Corporation today announced it will ship the world's first hybrid-core computer, the Convey HC-1, to the University of California, San Diego as part of the university's "Project GreenLight" energy efficiency initiative.

UC San Diego estimates substantial performance gains, cost savings and reduced environmental impact with the HC-1. The HC-1 will reduce the time to completion by two orders of magnitude on a widely used UCSD bioinformatics application, InsPecT/MS-Alignment, which supports blind proteomics searches, one of the most time-consuming applications in bioinformatics. Convey's innovative hybrid-core computer system, introduced during SC08, marries the low cost and simple programming model of a commodity system with the performance of a customized hardware architecture.

"We have found that one rack of HC-1 servers will replace eight racks of other servers at our mass spectrometry center and outperform them on our most data-intensive application, InsPecT/MS-Alignment, with correspondingly lowered energy requirements," said Pavel Pevzner, director of the newly-created Center for Computational Mass Spectrometry in UCSD's Jacobs School of Engineering.

"We will make the innovative HC-1 servers available to computer science and application researchers in our NSF-funded GreenLight Project to find more examples of such dramatic results," said Dr. Thomas DeFanti, GreenLight's principal investigator and a Calit2 Senior Research Scientist.

Project GreenLight is an environmental initiative at UC San Diego that is investigating energy efficient, high-performance computing [HPC] solutions and

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new ways to boost performance while simultaneously reducing power, cooling and energy needs.

"The HC-1 is a remarkably ingenious and innovative HPC architecture, which combines the best of both worlds of general purpose multi-core and special-purpose Field Programmable Gate Arrays," said Dr. Larry Smarr, director of the California Institute for Telecommunications and Information Technology (Calit2) and a professor of Computer Science and Engineering (CSE) in UCSD's Jacobs School of Engineering. "Once again, Steve Wallach has introduced a new class into HPC architectures." Steve Wallach, co-founder of Convey Computer, is the 2008 winner of the Seymour Cray Computer Science and Engineering Award.

Convey's innovation revolves around incorporation of reconfigurable computing resources in a memory-coherent manner to mainstream processing. "This enables it to exploit parallelization opportunities effectively and at a finer grain than possible with FPGA-based custom computing machines, while using existing program development and execution environments," said Dr. Rajesh Gupta, who holds the Qualcomm Endowed Chair in Embedded Microsystems in the Jacobs School's CSE department.. "We have found the machine useful in accelerating codes that rely on optimizations using dynamic programming."

With the HC-1– and the mass-spectrometry proteomics application from UC San Diego−scientists will now be able to initiate unrestricted "blind searches" of massive protein databases to look for possible and unanticipated modifications in proteins. Most proteins undergo modifications such as phosphorylation that serve many functions. As a result, modifications are particularly important for the study of diseases where multiple genes are involved, such as heart disease or cancer. Prior to the HC-1, such computationally intense searches were simply too slow to be feasible on a large scale.

"Current methods are slow and generally computationally prohibitive, taking up too much time and resources," said Pevzner. "Even the fastest blind search tools could run for months while analyzing millions of spectra against a large protein database. With the HC-1 we are predicting the same search could

be accomplished in less than a day. This will benefit processes sent to the web server at the Mass Spectrometry Center from around the world."

UC San Diego's initial order consists of two HC-1 systems loaded with a proteomics "personality" designed specifically for the blind proteomics searches. Personalities are customized instruction sets that increase productivity for specific HPC applications. The server will dynamically adapt to the blind proteomics searches to maximize computing efficiency and flexibility.

About Convey Computer Corporation
Based in Richardson, Texas, Convey Computer breaks power, performance and programmability barriers with the world's first hybrid-core computer—a system that marries the low cost and simple programming model of a commodity system with the performance of a customized hardware architecture. Convey brings decades of experience and intellectual assets to performance problem-solving. Its executive and design teams all come from successful backgrounds of building computer companies, most notably Convex Computer Corporation and Hewlett-Packard. More information can be found at: www.conveycomputer.com.

About Calit2
The California Institute for Telecommunications and Information Technology (Calit2) is a partnership between UC San Diego and UC Irvine. It houses over 1,000 researchers organized around more than 50 projects on the future of telecommunications and information technology and how these technologies will transform a range of applications important to the economy and citizens' quality of life. www.calit2.net

About the Center for Computational Mass Spectrometry
Announced in October 2008, the UC San Diego-based Center for Computational Mass Spectrometry received a five-year, $4.94 million grant from the National Institutes of Health's National Center for Research Resources (NCRR), to develop algorithms and software for deciphering all the proteins that are present in biological samples. This "proteomics" work promises to revolutionize routine blood tests, vaccine development, cancer diagnostics, and many other important biomedical challenges.

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