

The World's First Hybrid-core Computer



CONVEY BACKGROUNDER

ESTABLISHED

2007—Richardson, Texas

Based in Richardson, Texas, Convey Computer breaks power, performance and programmability barriers with the world's first hybrid-core computer—a heterogeneous computing system that marries the low cost and simple programming model of a commodity system with the performance of a customized hardware architecture. Convey's groundbreaking hybrid-core computing architecture tightly integrates advanced computer architecture and compiler technology with commercial, off-the-shelf hardware—namely Intel® Xeon® processors and Xilinx® Field Programmable Gate Arrays (FPGAs). The systems help customers dramatically increase performance over industry standard servers while reducing energy costs associated with high-performance computing.

INDUSTRIES

Using the Convey hybrid-core systems, customers worldwide in industries such as life sciences, research, big data analytics, and the government/defense are enjoying increased application performance and lower costs of ownership.

FINANCIAL

Convey is privately held and funded by individual investors CenterPoint Ventures, Intel Capital, InterWest Partners, Rho Ventures, and Xilinx.

MARKET GROWTH

The worldwide HPC market is expected to grow at an approximately 7% annual growth rate over the next five years, exceeding \$14 billion by 2016.¹ Applications demanding increased performance combined with increasing power, space and cooling costs mean heterogeneous computing systems are well positioned for growth. A recent report by analyst firm IDC², reports that heterogeneous computing is going mainstream and will be “indispensable for achieving exascale computing.” In 2010 IDC found that 28% of HPC sites were using accelerator technology, which represented a “threefold increase from two years earlier.”

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PRODUCTS

The Convey Hybrid-core Family

HC Series

The Convey HC Series accelerates computing by providing higher absolute performance, increased functionality, and improved efficiency compared to commodity servers. The coprocessor in the HC Series employs patented technologies that deliver a unified virtual address space, a high bandwidth, scatter/gather memory system, and “personalities” that are loaded into the FPGA application engines at runtime to deliver performance.

Convey MX™ Series

Convey's innovative MX Series is designed to run big data applications that can benefit from massive parallelism and large physical memory (the architecture is scalable to 32 TB). The new architecture features the capability to run tens of thousands of threads of execution coupled with a smart memory system that can atomically perform “in-memory” arithmetic operations.

Convey Personality Development Kit (PDK)

The Convey coprocessor implements personalities—multiple, reloadable instruction sets that augment the host's x86 instruction set. A personality can be applicable to a class of applications or specific to a particular code. The PDK allows you to create hardware-based equivalents to key application kernels greatly accelerating application performance.

Convey Bioinformatics Suite (CBS)

Working closely with numerous customers and partners, including instrument manufacturers, Convey provides bioinformatics solutions in a variety of areas by way of the Convey Bioinformatics Suite (CBS). Applications include primary analysis, reference based and de novo assembly, sequence alignment, and downstream research such as phylogenetics. The applications in the CBS greatly accelerate often-used bioinformatics workflows.

CHOMP

The Convey Hybrid-core OpenMP® programming environment (CHOMP) is a set of tools, compiler extensions, and personalities (reconfigurable application-specific instruction set architectures) that supports a massive multithreaded architecture. CHOMP is based on the OpenMP 3.0 specification as the basis for the first high-level parallel programming model.



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MANAGEMENT

Convey's experienced professionals share a wealth of knowledge and experience, an excellent track record for technical innovation, and a keen ability to deliver technology that addresses your needs today and into the future.

Bruce Toal, CEO, President, Co-Founder, and Director

Steve Wallach, Chief Scientist, Co-Founder, and Director

Tony M. Brewer, Chief Technology Officer and Co-Founder

Kent Coker, Chief Financial Officer

Harold Dozier, Vice President of Hardware Development

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¹IDC HPC Market Update—June 2012

²"Heterogeneous Computing: A New Paradigm for the Exascale Era," November 2011

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