The WX Series provides application-specific performance for HPC and data-intensive applications. Based on industry standard servers, the Convey WX Series nodes can directly replace multiple "standard" servers, reducing power, cooling and floor space requirements.

Since the advent of clusters of commodity servers to solve large HPC and data-intensive problems, the solution to increasing performance has been "add another rack of servers." Today that solution is becoming more difficult. Another rack of servers means more power consumed, more floor space being occupied, more heat to dissipate, and additional IT staff.

Ideally, increasing performance without increasing power, space, and cooling would solve this dilemma. However, today's computing technology can offer only incremental performance improvements. To achieve orders of magnitude increases, you need better computing technology. Convey gives you better computing with hybrid-core technology.

**HYBRID-CORE: A BETTER WAY**

Hybrid-core is a revolutionary technology that circumvents the performance limitations of today's commodity servers. The heterogeneous architecture of Convey's hybrid-core systems combines the economies and programmability of industry standard processors with the performance and efficiency of a hardware-based, application-specific design.

Convey hybrid-core servers employ a reconfigurable coprocessor that augments the capabilities of commodity processors with processing elements optimized for performance-critical operations.

Instructions executed by the coprocessor appear as extensions to the x86 instruction set and can be customized to directly address the application's performance needs.

The Convey coprocessor is based on standard Field Programmable Gate Arrays (FPGAs) coupled with standard multi-core Intel® Xeon® processors. Physically, each processing element has its own local memory; logically, memory is globally addressable and coherent. The coprocessor can be reloaded dynamically with application specific personalities—customized.

"Standard clusters by themselves are not designed to efficiently handle some of the most challenging, high-value work, especially graph analytics and other hard-to-partition problems. Convey's unique approach is designed to excel at tackling the data-level parallelism (DLP) that characterizes many of these problems. Convey's hybrid-core solutions target better time efficiency, power efficiency, and cost efficiency—not to mention the ability to obtain answers that would be impractical without high-performance analytics."

—Steve Conway, Research Vice President, IDC's High Performance Computing Group
Convey’s Personality Development Toolset takes advantage of the tight integration between a multi-core host and the FPGA-based coprocessor to make software development dramatically easier.

**HIGHER PERFORMANCE, LOWER TCO**

The Convey hybrid-core systems adapt to different workloads through reloadable instruction sets specifically designed to achieve orders of magnitude acceleration in a variety of applications, including classic HPC computing, as well as data intensive applications like memcached. Often, a handful of Convey servers can replace multiple racks of commodity systems, while providing increased overall performance.

Not only does power savings mean you are saving money, you are also helping to save the environment. The Convey systems allow you to “go green” by reducing the number of servers in your HPC environment, without sacrificing performance.

**EASE OF DEPLOYMENT**

Because Convey servers are based on standard x86 server technology, Convey nodes appear to the rest of the cluster as a standard server. From the cluster interconnect to job management and administration utilities, the only difference in appearance is the five-to ten-fold increase in applications performing on the node.

Don’t settle for incremental performance improvements using today’s commodity technology. Convey’s revolutionary hybrid-core systems give you better computing for better analytics.