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# Industrial Design Challenge: Pairing Server-Class Performance with a Long-Life System

Adding to production life while reducing complexity and cost turns out to be a job for server class industrial engines that know how to hitch longevity to dual-processor Intel Xeon performance.

By Martin Rudloff, Corvalent

Traditional server systems can be overkill, with a raft of costly and often unnecessary certifications; Intel® Xeon®-based designs have been considered too costly in contrast to Intel Core™ i7, based on additional complexity in development required to fully capitalize on dual-processor capabilities. It's just been the norm to sacrifice longevity, and use commercially available workstation products to accommodate steadily-increasing performance and storage needs. New high performance industrial engines solve this

design limitation, embracing Intel Xeon technology in an application-ready, customizable server-class design with guaranteed production and availability of five to seven years.

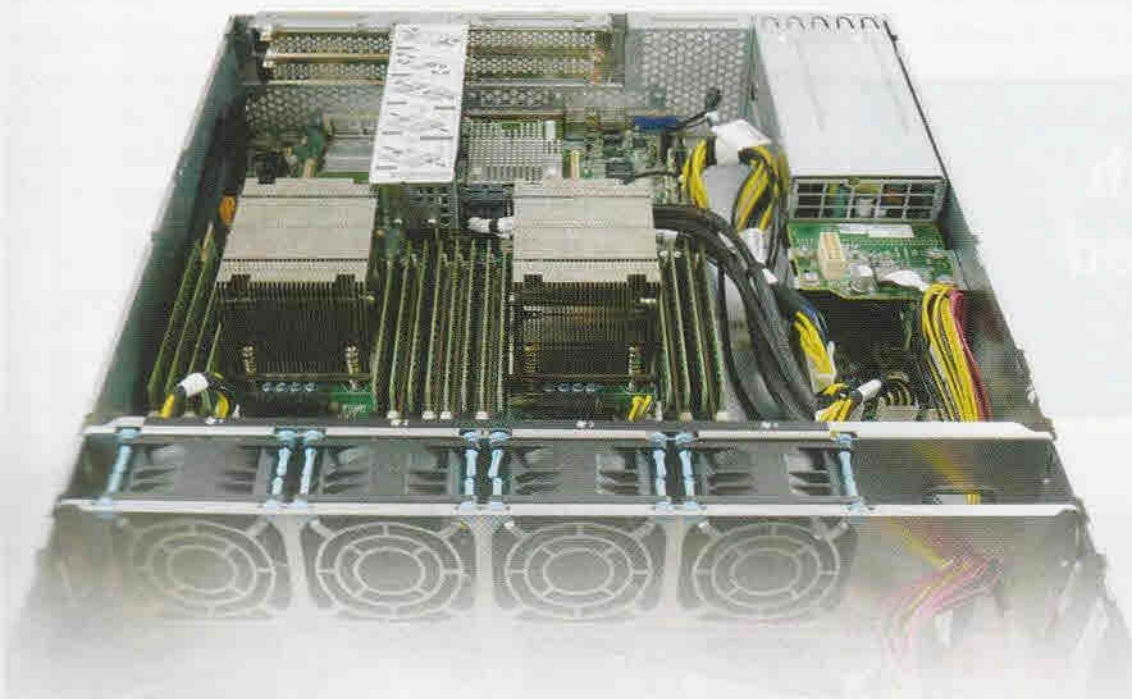
Illustrated by Corvalent's CorServer platform, new server-class industrial engines are filling this void. By packaging rugged board and chassis into a smart, configurable design, the system removes obstacles such as short production life, cost, and complexity. Server board and chassis are optimized to work

together, while the cabling layout enables airflow supported by low-noise internal fans. Applications in Big Data analytics, real-time medical imaging, cloud or data center computing, security and surveillance, and more can be developed using cost-effective, long-term deployable solutions that were not previously available. These data-intensive and storage-heavy applications can benefit from a high-performance server-class system that eliminates bottlenecks and better enables real-time processing of data. Fueled by Xeon performance, more advanced data management close to the source can reduce challenges of latency and bandwidth by transmitting processed, encrypted files rather than massive amounts of raw data. CorServer eval units are available and demonstrated in this video, as well as a white paper that highlights design value using application examples such as medical

imaging, security and surveillance, and cloud and data center processing.

## Server-Class, Dual-Processor

CorServer systems are server-class, offering a dual-processor platform with no unnecessary third-party hardware certifications. For developers, this smart approach reduces costs while ensuring performance with industry operating



*Figure 1: CorServer blends longevity with dual-processor Intel Xeon performance in an industrial rackmount system available in 1U and 2U configurations. Design and layout is informed by custom design requirements and features both server-class and workstation-class systems offering up to eight channels of 16 DDR4 DIMM memory support, extended temperature operation from 5°C to 35°C, and redundant power supplies and fans to assure rugged reliability. The platform integrates the Intel Xeon E5-2600 family, designed specifically for two-socket servers and offering 20 percent more cores and cache than previous generation processors. Applications benefit from up to 22 cores per socket, as much as 55MB of last-level cache (LLC) and support for DDR4, which is 12 percent faster than earlier memory generations.*

systems and advances such as Error Correcting Code (ECC), optimized thermal dissipation, and more robust remote access management. Intel Xeon allows developers to optimize processing speed and compute functions, sharing resources for significantly improved overall performance even on single-node applications. This could make a big design difference in IoT applications that already take full advantage of Intel Core i7 performance but are limited to a single multicore processor; Intel Xeon processors allow developers to optimize processing speed and compute functions, sharing resources for significantly improved overall performance even on single-node applications.

Intel Xeon processors also capitalize on Intel Hyper-Threading Technology—coupled with Intel® Turbo Boost, multiple threads to run on each core and processing adapts dynamically to the workload. When inactive cores are automatically disabled and throughput is increased on busy cores, performance improves overall for threaded applications. Systems are more efficient and responsive, and can more easily maintain headroom for growth and new capabilities that may be required in longer deployments. This is one factor that ensures system longevity as a key design value for server-class systems.

### Longevity Adds Value

Further considering longevity, server-class systems such as CorServer are backed by a five to seven year consistent supply guarantee, made possible through a combination of partnerships and design commitments. While Corvalent uses only server-class processors and chipsets on Intel's embedded roadmap, company control of board and system design extends longevity even further. In contrast to workstation products, which may even be out of production by the time an application is fully developed, developers and OEMs have more time to develop software applications. This solves the long-life challenge and provides access to systems that have previously been too complex or costly to consider.

*Martin Rudloff is Chief Technology Officer, Corvalent. He manages all aspects of Corvalent's product technology, from concept to development to production, validation and product support. Rudloff started his 30-year career at MSM Corporation, working as a technical liaison between the technicians, support personnel and product manufacturers based in the U.S. In 1991, he relocated to the U.S. to manage the Test Validation Department for DEICO Electronics (Industrial Motherboards). Rudloff is also the founder of a software and computer technology company that specializes in training executives and other professionals. He graduated with a BS in Electrical Engineering from Escola Politecnica in São Paulo, Brazil. Reach Rudloff at martin.rudloff@corvalent.com.*

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