# Centaur Releases In-Depth Analysis from The Linley Group for World's First x86 Processor with AI Coprocessor Technology

*Detailed Technical Disclosure Follows Successful Demonstration at ISC East Trade Show*

**Austin, Texas – December 9, 2019** – Centaur Technology today revealed in-depth information about its new processor-design technology for integrating high-performance x86 CPUs with a specialized coprocessor optimized for artificial intelligence (AI) acceleration. On its website (www.centtech.com), Centaur provides a new independent report from The Linley Group, the industry's leading authority on microprocessor technology and publishers of Microprocessor Report. The Linley Group reviewed Centaur's detailed design documents and interviewed Centaur's CPU and AI architects to support the analysis of both Centaur's newest x86 microarchitecture and the AI coprocessor design.

"Centaur is galloping back into the x86 market with an innovative processor design that combines eight high-performance CPUs with a custom deep-learning accelerator (DLA). The company is the first to announce a server-processor design that integrates a DLA. The new accelerator, called Ncore, delivers better neural-network performance than even the most powerful Xeon, but without the high cost of an external GPU card," stated Linley Gwennap, Editor-in-Chief, Microprocessor Report.

The Linley Group referenced certified MLPerf[1] benchmark (Preview) scores to compare Centaur's AI performance to high-end x86 CPU cores from the leading x86 vendor. Based on MLPerf scores, Centaur's AI-coprocessor inference performance is comparable to 23 of Intel's world-class x86 cores that now support 512-bit vector neural network instructions (VNNI)[2]. Centaur's AI coprocessor uses an architecturally similar single-instruction-multiple-data (SIMD) approach as VNNI, but crunches 32,768 bits in a single clock cycle using a 16MB memory with 20 terabytes/sec of bandwidth. Moreover, by offloading inference processing to a specialized coprocessor, the x86 CPU cores remain available for other, more general-purpose tasks. Application developers can innovate new algorithms that take advantage of the unparalleled inference latency enabled by Centaur's AI performance and tight integration with x86 CPUs.

Attendees at the ISC East trade show in NYC saw Centaur's new technology up close for the first time. The demo showcased video analytics using Centaur's reference system with x86-based network-video-recording (NVR) software from Qvis Labs. In addition to conventional, real-time object detection/classification, Centaur was the only vendor at the show to highlight leading-edge applications such as semantic segmentation (pixel-level image classification) and a new technique for human pose estimation ("stick figures"). Centaur is focused on improving the hardware

price/performance and software productivity for platforms to support this next wave of research applications and speed deployment into new server-class products.

About Centaur Technology

Austin, Texas-based Centaur Technology is a small group of very talented engineers that have been designing AI accelerator technology for high-performance, low-cost x86-compatible microprocessors. Over the past 24 years, Centaur Technology has shipped 26 different x86-based designs with millions of units sold. More information is at www.centtech.com.

*[1] MLPerf v0.5 Inference Closed/Preview audited submission, Sept. 2019. MLPerf name and logo are trademarks. See www.mlperf.org for more information.*
*[2] MLPerf Inf-0.5-23. Dual Intel® Xeon® Platinum 9282 (112 total cores). MobileNet-V1 and ResNet-50 on Intel x86 cores with VNNI. Intel and Xeon are trademarks of Intel Corporation.*

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