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Core Avionics & Industrial Inc. Announces Suite of Safety Critical GPU Accelerated Compute Libraries Using Vulkan® API

Tampa, Florida, January 8, 2020: Core Avionics & Industrial Inc. (“CoreAVI”) announced today the release of ComputeCore™, a suite of safety certifiable compute libraries supported on the company’s Vulkan compute and graphics platform. ComputeCore includes a unique safety critical framework and a suite of algorithms and libraries that provides the industry’s first safety certifiable platform to enable high performance accelerated compute and autonomous systems. ComputeCore facilitates a path to safety certification from non-safety critical OpenCL® or CUDA® applications by providing pre-written algorithms that can be used immediately, saving integrators time and money on designing their own algorithms.

Designed from the ground up for safety certification, ComputeCore is offered by CoreAVI in conjunction with CoreAVI’s VkCore™ SC safety critical graphics and compute driver and supports a number of compute functions such as FFT computations, matrix manipulation (including matrix multiplication, transpose and inverse), optical flow analysis, and image filtering in the spatial domain including edge detections, blurring, standard deviation filtering, and noise removal. The building block nature of ComputeCore’s capabilities makes it easily expandable to meet a wide range of compute algorithms. The ComputeCore framework and suite of libraries is automotive ISO 26262 certifiable to ASIL D, and avionics RTCA DO-178C/EASA ED-12C certifiable to DAL A.

In collaboration with Arm and Wind River®, the use of ComputeCore accelerating edge detection and object tracking was demonstrated at Arm TechCon in San Jose, CA, on Oct 9-10, 2019. ComputeCore is ideal for a wide range of machine learning and autonomous applications such as neural network inferencing, augmented vision systems, signal processing, detection and analysis, image processing, and encryption. CoreAVI offers services to facilitate the migration of existing CPU/FPGA/OpenCL/CUDA compute functions or algorithms to safety critical Vulkan, allowing compute applications to benefit from the performance gains and scalable capabilities offered by Vulkan.

“CoreAVI is excited to add ComputeCore, the industry’s first suite of safety critical Vulkan compute libraries, to our platforms for safety critical applications,” said Damian Fozard, CEO at CoreAVI. “These libraries are purpose-built to speed and ease our customers’ transition from non safety critical CUDA and OpenCL to safety critical Vulkan while at the same time offering the flexibility to expand their many compute capabilities to meet the needs of a variety of programs and applications.”



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“Wind River is pleased to collaborate with CoreAVI to demonstrate ComputeCore’s new safety critical compute technology,” said Michel Genard, vice president of product at Wind River. “ComputeCore’s variety of algorithms complement the reliability, safety, and security capabilities of our VxWorks® real-time operating system and will offer our avionics, automotive, and industrial customers the high performance compute and ease of transition they need for the next gen of autonomous systems.”

For more information, please contact Sales@coreavi.com.

About Core Avionics & Industrial Inc.

Core Avionics & Industrial Inc. (“CoreAVI”) is a pioneer in the military and aerospace sector with a proven track record in providing entire software and hardware IP platform solutions that enable safety critical applications. A global leader in architecting and supplying real-time and safety critical graphics, compute, and video drivers, “program ready” embedded graphics processors, and DO-254/ED-80 certifiable COTS hardware IP, CoreAVI’s suite of products enables the design and implementation of complete safety critical embedded solutions for aerospace, automotive, and industrial applications that achieve the highest levels of safety certification with long-term support. CoreAVI’s solutions are deployed in commercial and military avionics systems, and support rapidly emerging compute applications in the automotive, unmanned vehicle, and internet of things markets. CoreAVI’s products may be purchased with certification data kits for the most stringent levels of safety certification, including RTCA DO-254/DO-178C, EUROCAE ED-80/ED-12C, and ISO 26262. www.coreavi.com