DDC-I and CoreAVI Provide Integrated, DO-178C RTOS/Graphics Platform for Fast-Growing SoC Multicore Avionics Market

Speeds development and deployment of next-generation safety-critical avionics applications utilizing high-performance Intel and NXP SoCs equipped with GPUs

Phoenix, AZ – May 19, 2022 - DDC-I, a leading supplier of software and professional services for mission- and safety-critical applications, today announced that it has teamed with CoreAVI to provide an integrated avionics RTOS/graphics platform for high-performance multicore SoCs equipped with on-board graphical processing units (GPUs), including the NXP i.MX 8 and 11th Generation Intel Core i7 (formerly Tiger Lake). Combining DDC-I's DO-178C, FACE-conformant Deos™ RTOS with CoreAVI's Vulkan-based VkCore®SC graphics and compute driver portfolio, the platform greatly accelerates the development, certification and deployment of compute- and graphics-intensive avionics applications requiring data fusion, sense/detect, synthetic vision, graphics and other advanced control functionality.

"CPU designs with dedicated GPUs and array processors are giving way to low-power, inexpensive multicore SoCs with integrated GPUs like the Core i7 and i.MX8," said Greg Rose, vice president of marketing and product management at DDC-I. "We're excited to be working with CoreAVI to provide a safety-critical operating environment with integrated graphics support that accelerates the development, deployment and certification of safety-critical applications for these high-performance SoCs."

"CoreAVI is pleased to support DDC-I's safety-critical Deos RTOS with our safety certifiable Vulkan driver suite," said Neil Stroud, VP of Marketing and Business Development at CoreAVI. "Avionics developers targeting emerging SoCs like the i.MX8 and Intel's 11th Gen Core i7 now have a versatile, high-performance GPU acceleration platform to develop highly converged mission and avionics processing solutions with an accelerated, low risk path to flight safety certification."

Vulkan is a new-generation graphics and compute API that provides high-efficiency, cross platform access to modern GPUs. CoreAVI's new VkCore SC Vulkan-based graphics and compute driver portfolio, as well as its VkCoreGL™ SC1 OpenGL® SC 1.0.1 and VkCoreGL SC2 OpenGL SC 2.0 application libraries, enable implementation of a full safe software stack on i.MX8 and Intel's 11th Gen Core i7 application processors. Vulkan provides unprecedented access to GPU compute and graphics resources while employing advanced acceleration technology that promotes balanced CPU/GPU usage, thereby boosting performance by better distributing work across multiple cores. Drivers for avionics applications are available with DO-178C safety certification evidence to DAL A.

Deos, first certified to DO-178 DAL A in 1998, provides FACE™ Conformant Safety Base and Safety Extended Profiles and features hard real-time response, time-space partitioning, slack scheduling and both ARINC-653 and POSIX interfaces. These capabilities enable Deos to scale well in the gamut of avionics applications, from highly deterministic deeply embedded

FADECs (Full Authority Digital Engine Control) and flight controls to complex high-throughput displays and mission computers.

Deos SafeMC™ provides advanced multicore technology that enables developers to take full advantage of the high-performance computing and graphics capabilities of multicore processors like Core i7 and i.MX8 without compromising safety-critical task response and guaranteed execution time. Employing a bound multiprocessing (BMP) extension of the symmetric multiprocessing architecture (SMP), SafeMC utilizes techniques like safe scheduling, memory pools and cache partitioning to minimize cross-core contention and interference patterns that affect the performance, safety criticality and certifiability of multicore systems, as specified by the Certification Authorities Software Team (CAST) in its position paper "CAST-32A for Multicore Processors".

About DDC-I, Inc.

DDC-I, Inc. is a global supplier of real-time operating systems, software development tools, custom software development services, and legacy software system modernization solutions, with a primary focus on mission- and safety-critical applications. DDC-I's customer base is an impressive "who's who" in the commercial, military, aerospace, and safety-critical industries. DDC-I offers safety-critical real-time operating systems, compilers, integrated development environments and run-time systems for C, C++, and Ada application development. For more information regarding DDC-I products, contact DDC-I at 4545 E. Shea Blvd, Phoenix, AZ 85028; phone (602) 275-7172; fax (602) 252-6054; e-mail sales@ddci.com or visit http://www.ddci.com/pr2206.

About CoreAVI

CoreAVI is the global leader in architecting and delivering safety critical graphics and compute software drivers and libraries, embedded 'system on chip' and discrete graphics processor components, and certifiable platform hardware IP. CoreAVI's comprehensive software suite enables development and deployment of complete safety critical solutions for automotive, industrial and aerospace applications requiring certification to the highest integrity levels coupled with full lifecycle support. CoreAVI's solutions support both graphics and compute applications including safe autonomy, machine vision and AI in the automotive, unmanned vehicle and industrial IoT markets, as well as commercial and military avionics systems. www.coreavi.com

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