NEWS RELEASE

Curtiss-Wright and DDC-I Collaborate for First Live Demonstration of Deos™ DO-178 Level A RTOS on Safety-Certifiable Arm® V3-1703 Single Board Computer

NXP® LAYERSCAPE® 1043A (LS1043A) ARM QUAD-CORE A53-BASED RTCA/DO-254 SAFETY-CERTIFIABLE COTS SBC NOW SUPPORTS DDC-I'S DEOS RTOS

MULTICORE FOR AVIONICS (MCFA) WORKSHOP, Bee Cave, Texas – October 29, 2019 – Curtiss-Wright's Defense Solutions division, a trusted leading supplier of rugged safety-certifiable commercial off-the-shelf (COTS) avionics, in collaboration with DDC-I, today announced that DDC-I's Deos DO-178 RTCA/DO-254 Design Assurance Level (DAL) A safety-critical, multi-core real-time operating system (RTOS) will be publicly demonstrated for the first time running on the Curtiss-Wright's NXP Layerscape LS1043A Arm quad-core A53 processor-based V3-1703 module, the industry's first DAL A safety-certifiable COTS Arm processor-based single board computer (SBC). The demonstration, hosted in DDC-I's booth at the 2019 Multicore for Avionics Workshop (MCFA), will feature the Deos RTOS running on the 3U OpenVPX™ V3-1703 and provide an integration example for system designers who are interested in building complete rugged DO-254/DO-178 safety-certifiable avionics solutions based on the Deos RTOS for aerospace, military, and other high reliability markets.

"We are seeing increased interest in the use of Arm-based SBCs in aerospace applications," said Lynn Bamford, Senior Vice President and General Manager, Defense and Power. "Support for DDC-I Deos DO-178C DAL A safety-certifiable RTOS on our DO-254 safety-certifiable Arm-based V3-1703 single board computer provides avionics system designers with the critical building blocks they need to quickly and cost-effectively develop Arm-based safety-certifiable systems."

"Deos SafeMC™ technology provides innovative features, such as cache partitioning, that help developers of Arm-based multicore avionics software segregate shared L2 cache on both a core-by-core and application-by-application basis, thereby bounding interference, improving determinism and reducing software jitter," said Greg Rose, vice president of marketing and product management at DDC-I. "As highlighted in the FAA's CAST-32A paper, reducing interference is essential for certifying multicore systems. This is one of the reasons that Deos has proven to be an excellent RTOS for modern avionics systems, and why may avionics suppliers are migrating to Deos world-wide."

About the DDC-I Deos RTOS

DDC-I's Deos is a field proven, safety-critical avionics RTOS that has been utilized to host a multitude of flight-critical functions, such as air data computers, air data inertial reference units, cockpit displays, flight control, flight management, engine control, and many more. Built from the ground up for safety-critical applications, Deos features a modular design with time and space partitioning that provides a straightforward, low-cost path to DO-178C DAL A certification, the highest level of safety criticality.

DDC-I's SafeMC technology extends DDC-I's advanced time and space partitioning capabilities to multiple cores, enabling developers of safety-critical systems to maximize multicore performance without compromising safety-critical task response and guaranteed execution times.

SafeMC employs a bound multiprocessing (BMP) extension of the symmetric multiprocessing architecture (SMP), safe scheduling, and cache partitioning to minimize cross-core contention and interference patterns that affect the performance, safety criticality and certifiability of multicore systems. These features enable avionics systems developers to address issues that could impact the safety, performance and integrity of a software airborne system executing on Multi-Core Processors (MCP), as specified by the Certification Authorities Software Team (CAST) in its Position Paper CAST-32A for Multi-core Processors.

About the V3-1703 SBC

The recently introduced the V3-1703, the safety-certifiable variant of the VPX3-1703 SBC, is a low-power module (14W to 21W depending on frequency and application) ideal for size, weight and power (SWaP) constrained deployed applications. This rugged, highly capable module brings Arm's unparalleled power-to-performance ratio to safety-critical avionics systems. Designed specifically to

address DO-254 avionics applications, the V3-1703 is available with data artifacts up to DAL A to help accelerate and ease the system certification process and greatly reduce program risks and costs.

The V3-1703's LS1043A processor, supported by NXP with a 15-year lifecycle, features four low-power Arm A53 cores that provide a good balance between performance, power, and cost for deployed defense and aerospace systems. What's more, because A53 cores are well known and field proven, they provide an ideal high-confidence pedigree for demanding and critical safety-certifiable applications such as avionics and motor/engine control. The fully rugged V3-1703 is ideal for use in mission computers, as well as general-purpose SBC applications, both safety-certifiable and non-certifiable.

Safety Certifiable for All Major Processor Architectures

Curtiss-Wright is the only COTS vendor with announced products that provide support for DO-254 hardware along with DO-178C software safety-certifiable operating environments from our operating systems partners across all three major processor architectures: Arm, Intel® and Power Architecture. This makes Curtiss-Wright uniquely positioned to support avionics system developers seeking to deploy embedded solutions that feature dissimilar redundant system architectures (i.e., using two or more different processor types while also running different operating systems) in order to meet the stringent requirements of DAL A certification.

DO-254 DAL A is required for safety-critical avionics applications such as flight control computers, fly-by-wire, flight displays, air data systems, and full authority digital engine control. A white paper discussing the benefits of dissimilar redundant architectures, "[Why Dissimilar Redundant Architectures Are a Necessity for DAL A](#)" is available for download. A second white paper, "[Is Arm the Future for Airborne Platforms in Military and Aerospace?](#)" highlights the benefits of Arm-based processing in safety-critical deployed applications.

Using the rugged V3-1703 module, avionics system designers can easily and rapidly integrate complete high-performance rugged DO-254/DO-178 safety-certifiable system solutions that run the Deos RTOS. The Deos RTOS has successfully met DO-178 DAL A certification objectives and has received Future Airborne Capability Environment (FACE) Conformance certification for FACE™ Technical Standard, Edition 3.0 Safety Base and Security Profiles for the Operating System Segment (OSS).

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++, Ada, and JOVIAL application development. For more information regarding DDC-I products, contact DDC-I at sales@ddci.com or visit https://www.ddci.com.

For more information about Curtiss-Wright's Defense Solutions division, please visit www.curtisswrightds.com.

About Curtiss-Wright Corporation

Curtiss-Wright Corporation is a global innovative company that delivers highly engineered, critical function products and services to the commercial, industrial, defense and energy markets. Building on the heritage of Glenn Curtiss and the Wright brothers, Curtiss-Wright has a long tradition of providing reliable solutions through trusted customer relationships. The company employs approximately 9,000 people worldwide. For more information, visit www.curtisswright.com.

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