DDC-I Announces Modular, Secure DAL-A Boot Solution for Avionics Systems Running Deos Safety-Critical RTOS

ME-Boot provides a compact, reusable, embedded boot solution for avionics platforms running Deos that can be readily enhanced, ported and certified

PHOENIX, AZ, UNITED STATES, September 23, 2026 /EINPresswire.com/ -- DDC-I, a leading supplier of software and professional services for mission and safety-critical applications, today announced ME-Boot™, a modular, portable, Design Assurance Level A (DAL-A) boot solution for the Deos™ DO-178C, safety-critical real-time operating system. ME-Boot provides a compact, flexible, reusable, phased, embedded boot solution for avionics platforms running Deos that can be readily enhanced with new capabilities, ported and certified on new hardware.

> ME-Boot provides a innovative DAL-A boot solution for avionics platforms running Deos with a modular design that enhances reuse, upgradeability. testability and certifiability”
>
> *Gary Gilliland, Vice President of Marketing at DDC-I*

“ME-Boot provides an innovative DAL-A certifiable boot solution for avionics platforms running Deos,” said Gary Gilliland, vice president of marketing at DDC-I. “Like Deos, ME-Boot employs a modular design in which boot components are divided into independently loadable modules. This modularity enables binary reuse of modules as well as the addition of customized modules, greatly reducing the cost and risk associated with developing, modifying, and maintaining avionics board support packages.”

ME-Boot (Modular Extensible Boot) is a multi-stage DAL-A bootloader that performs hardware initialization and boots the Deos kernel, including pre-OS loading activities (e.g., secure boot) and OS component loading and launch. ME-Boot performs first-stage operations such as configuring the memory controller, SDRAM, CPUs and other I/O devices. It then performs second-stage booting operations such as loading the Deos kernel, system image and related files from a storage device such as flash, SATA drive, or over ethernet.

Most hardware vendors supply a BIOS, slim boot, or U-boot when they deliver a board. For a certified system, this code must be replaced with new code that can be certified to the required DAL. When dealing with DO-178C-certifiable or other higher integrity production BSPs, the boot

code is usually a highly customized, one-off code base developed from the ground-up that is platform specific with a single executable module based on each system use case.

One of the challenges of this highly customized approach is that it becomes very expensive to make changes due to the reverification efforts needed for the entire BSP code base. As such, reusability is often limited to snippets of source code with little or no reuse of any of the other software life-cycle data (e.g., requirements, tests, etc.). Additionally, this approach restricts the user's ability to add or modify the BSP once it has been delivered by the supplier (e.g., PBIT, IO initialization, security, etc.).

ME-Boot employs a modular approach that streamlines the development, modification, and reuse of DAL-A BSPs by separating the boot functions into independent modules. This modular approach allows capability to be readily added and subtracted without affecting the verification evidence of previous work, thereby allowing binaries to be reused on common architectures. It also makes it easy for developers to add new functionality such as security (authentication, encryption, key storage), I/O configuration, and Power on Built in Testing (PBIT). Custom module testing with unique system testing requirements can also be readily added without perturbing other COTS modules, thus accelerating time to market and significantly reducing labor and costs.

About Deos

Deos is employed in commercial and military ground, marine, air, and space systems where reliability and determinism are paramount. Rooted initially in avionics, Deos was first certified to DO-178 DAL-A (the utmost software process standard) in 1998 and is deployed in over 10,000 commercial aircraft. Deos' use cases have extended outside avionics, where its proven technical features provide numerous advantages over legacy RTOS architectures, especially as integrated system complexity continues to grow while still requiring a high degree of determinism and robustness. Deos is also aligned with modern military initiatives such as FACE®, MOSA, PYRAMID, and others.

Deos is a safety-critical embedded RTOS that employs patented cache partitioning, memory pools, and safe scheduling to deliver higher CPU utilization than any other certifiable safety-critical COTS RTOS while also addressing AC/AMC 20-193 multi-core objectives. The Deos environment also offers security features, middleware, networking, and other components often desired for modern embedded systems.

About DDC-I, Inc.

DDC-I, Inc. is a global supplier of real-time operating systems, software development tools, and software development services 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. For more information regarding DDC-I products, contact DDC-I, 4545 E. Shea Blvd #210, Phoenix, AZ 85028; phone (602) 275-7172; fax (602) 252-6054; e-mail sales@ddci.com or visit http://www.ddci.com/pr2616.

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