

Northrop Grumman SBC Running DDC-I's Deos RTOS Provides DAL A DO-178C and DO-254 Platform for Safety-Critical Systems

FACE®-conformant, safety-critical A53-based multi-core single-board computer features complete DO-178C/DO-254 DAL A verification in a credit card form factor

PHOENIX, AZ, UNITED STATES, October 7, 2026 /EINPresswire.com/ -- DDC-I, a leading supplier of

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*Gary Gilliland, Vice President
of Marketing at DDC-I*

software and professional services for mission- and safety-critical applications, today announced a bundled Design Assurance Level A (DAL A) [safety-critical platform available from Northrup Grumman Italia \(NGI\)](#) that combines the NGI A53 Main Multi-Core Computing Unit (MMCCU) single-board computer (SBC) with DDC-I's Deos™ DO-178C real-time operating system (RTOS). The platform featuring the Deos RTOS and a board support package (BSP) with DO-178C DAL A evidence and DO-254 DAL A artifacts, greatly accelerates the development, deployment, and certification of I/O- and compute-intensive safety-critical applications such as drones, avionics, missiles, mission computers, CubeSat, and other SWaP constrained

platforms.

The NGI MMCCU mezzanine module is a DO-254, DO-178, safety-certifiable SBC in a credit card form factor. The SBC combines the high performance of the NXP Layerscape LS1043A ARM quad-core A53 processor with advanced I/O capabilities implemented in a dedicated NGI FPGA. Equipped with 4 Gbytes of DDR memory, 512 Mbytes of NOR flash, and a secure boot crypto device for key storage, MMCCU features DO-254 artifacts up to DAL A and DO-178 artifacts up to DAL A for secure boot and loading. The MMCCU also features versatile networking and I/O interfaces, including Ethernet, ARINC 429, dual temperature sensors, UARTs, configurable discrete I/O, watchdog timers, SPI and QSPI, I2C, real-time clock, and eMMC memory interface, “Most SBC/RTOS integrations come with a bare bones BSP for booting the kernel and basic drivers which are a subset of the I/O, networking, and other functionality provided by the processor and board,” said Gary Gilliland, Vice President of Marketing at DDC-I. “The Deos/MMCCU platform is a true out-of-the-box solution with a robust set of drivers and comprehensive, reusable DAL A evidence for both the software (DO-178C) and hardware (DO-

254) that lets Northrop Grumman/DDC-I customers hit the ground running with a fully integrated platform for developing, certifying and deploying high-performance, safety-critical avionics applications.”

Deos employs patented cache partitioning, memory pools, and safe scheduling to deliver higher CPU utilization than any other certifiable safety-critical COTS RTOS. SafeMC technology extends Deos’ advanced capabilities to multiple cores, enabling developers of safety-critical systems to achieve best in class multi-core performance without compromising safety-critical task response and guaranteed execution time in line with AC/AMC 20-193 multi-core objectives.

Deos is highly scalable, from small footprint single-core applications to complex applications requiring multiple cores, enabling developers to start with a single-core Deos environment and migrate to a multi-core configuration seamlessly. Deos is also highly modular, enabling the exact same OS component software modules, down to the binary level, to be reused from one certifiable project to the next.

To enhance SWaP and streamline the certification process, Deos also emphasizes scalable, portable DAL A verification. The Deos DAL A linking loader allows OS binary components and their artifacts to travel separately, thereby enabling Deos/MMCCU developers to reconfigure their I/O systems with minimal impact on hardware, software and DO-178 recertification. Moreover, because Deos device drivers utilize user rather than kernel space, device driver changes do not affect kernel certification.

About Deos

Deos is a safety-critical embedded RTOS 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. Since then, 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.

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/pr2617>.

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