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VORAGO Introduces VA5 Family of Dual-Core Rad-Hard and Rad-Tolerant Microcontrollers for Next-Gen Space and Defense Systems

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VORAGO Technologies, a leader in radiation-hardened and extreme-temperature semiconductor solutions, today announced the upcoming availability of the VA5 family, a new generation of dual-core Arm® Cortex®-M55 microcontrollers engineered to meet the rigorous demands of aerospace, defense, and deep space missions. The family includes both radiation-hardened and radiation-tolerant variants?providing engineers the flexibility to match mission requirements with cost, performance, and resilience needs. Engineering samples and development kits will be available H1 2026 to support the development of next-generation mission-critical systems.

The VA5 family of MCUs offer exceptional resilience in radiation-prone environments. Based on VORAGO?s proprietary HARDSIL® technology, the rad-hard MCU series, VA532XX, delivers a total ionizing dose (TID) target of over 200 krad(Si) with latch-up immunity above 110 MeV·cm2/mg?built for maximum resilience and mission assurance for space, defense, and other high-radiation applications. The rad-tolerant MCU series, VA542XX, meets a TID target of over 50 krad(Si) and latch-up immunity above 60 MeV·cm2/mg?ideal for missions in moderate radiation environments such as LEO constellations. Together, the VA5 family provides

a trusted foundation for mission-assured electronics, empowering engineers to achieve success in even the most challenging conditions.

?Space-bound systems don?t get second chances,? said Bernd Lienhard, CEO of VORAGO Technologies. ?From deep space exploration to cost-sensitive LEO applications, the VA5 family of MCUs give our customers the ability to choose the right level of radiation protection for their mission while delivering the same industry-leading performance and reliability.?

The VA5 family features two 32-bit Arm® Cortex®-M55 cores with integrated floating-point and memory protection units, balancing performance and efficiency for power-constrained platforms with intensive processing needs. To protect system data integrity, the VA5 family incorporates Dual Interlocking Cells (DICE), Triple-Mode Redundancy (TMR), hardware Error Detection and Correction (EDAC), and a dedicated scrub engine that mitigates soft errors in real time. The family?s memory architecture includes 256 KB of non-volatile memory, 512 KB of double-word SRAM, and 128 KB of byte-addressable SRAM?each safeguarded by EDAC?with support for memory expansion via high-bandwidth SPI and an external bus interface.

The system?s peripheral options include up to 139 GPIOs, dual SpaceWire interfaces, an Ethernet MAC with Quality of Service, multiple 12-bit ADCs and DACs, analog comparators, timers, watchdogs, and motor controllers. Together, these capabilities enable a wide range of mission-critical applications. They support diverse primary workloads and payloads, including communications, command, and control for secure and reliable coordination between spacecraft and ground systems. They also facilitate system health and performance monitoring, providing continuous telemetry and diagnostics for mission assurance. Precision propulsion system control is enabled for chemical, electric, and hybrid units, while robotics and automation benefit from real-time control of autonomous platforms and mechanical actuation. The platform also supports software-defined radios for adaptable communications, antenna systems for advanced beam steering and signal management, and optical control systems for high-precision imaging, guidance, and targeting. In addition, it can manage other essential functions such as scientific instrumentation and payload control.

Designed for operation between -55 °C and +125 °C, the VA5 family will be available in multiple package options?including Ceramic QFP-216 and Plastic BGA-256?to meet ruggedization and integration requirements across platforms. From deep space probes to terrestrial systems in high-radiation environments, VORAGO offers microcontrollers purpose-built to meet diverse mission requirements. To learn more about the VA5 family of rad-hard and rad-tolerant MCUs, visit voragotech.com.

About VORAGO Technologies

VORAGO leads the industry in providing radiation hardened and radiation tolerant microcontrollers and microprocessors for Aerospace, Defense and Industrial projects around the globe. VORAGO?s patented HARDSIL® technology uses cost-effective, high-volume manufacturing to harden any commercially designed semiconductor component for extreme environment operations. VORAGO primarily serves Aerospace & Defense customers in North America and Europe and has a deep flight heritage. VORAGO is a privately held company based in Austin, Texas. Learn more at voragotech.com.

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VORAGO Technologies

VORAGO Technologies is a leading provider of radiation hardened and radiation tolerant components for Aerospace, Defense, and Industrial applications.

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