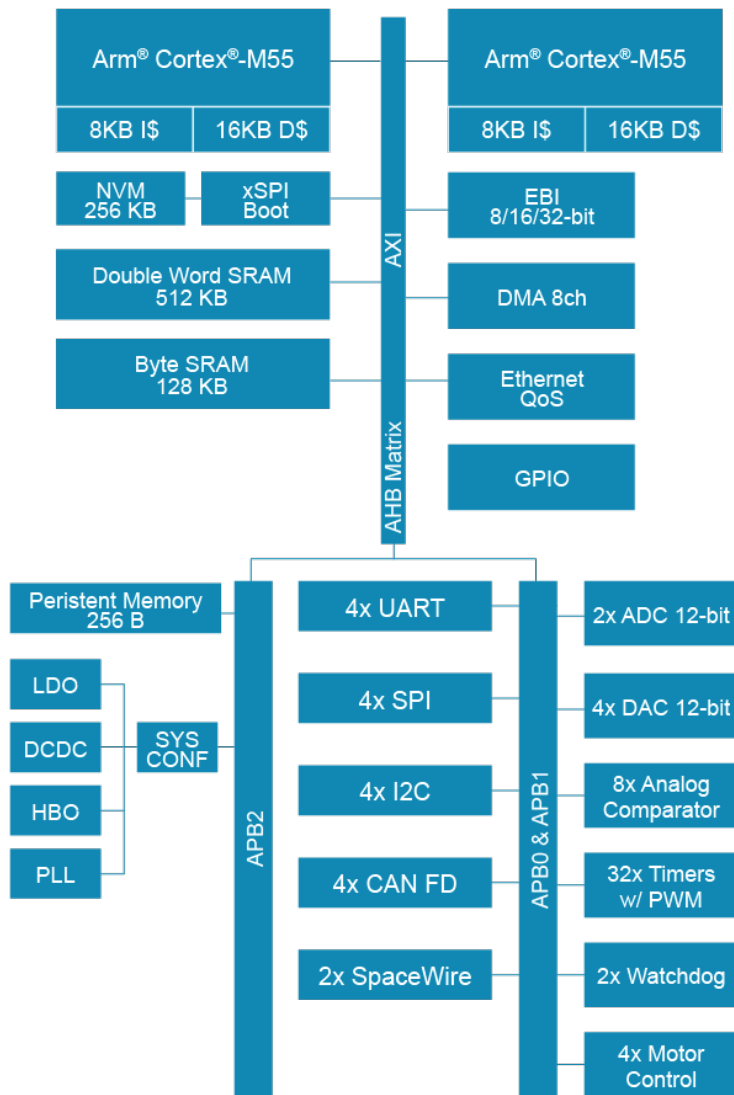


VA5 Family of Dual-Core Arm® Cortex®-M55 Microcontrollers



Radiation Performance (Target):

Radiation Hardened:

Total Ionizing Dose (TID) > 200 krad(Si) with FRAM

Single-Event Latch-Up (SEL) immunity to LET > 110 MeV*cm²/mg

Radiation Tolerant:

Total Ionizing Dose (TID) > 50 krad(Si) with FRAM

Single-Event Latch-Up (SEL) immunity to LET > 60 MeV*cm²/mg

Key Features:

Radiation Hardened

- HARDSIL® process technology
- Dual Interlocking Cells (DICE)
- Triple-Mode Redundancy (TMR)
- Error Detection and Correction (EDAC)
- Scrub Engine

Dual 32-bit Arm Cortex-M55 processor

- Single-precision Floating-Point Unit (FPU)
- Memory Protection Unit (MPU)
- Serial Wire Debug (SWD) & JTAG

Operating Voltage

- Single supply with on-chip LDO & DCDC
- I/O 3.3 V ± 0.3 V
- Core 1.2 V ± 0.1 V

Clocks

- PLL up to 200 MHz
- Internal 16 MHz heartbeat oscillator
- External clock and crystal support

Memory

- 8KByte iCache/16KByte dCache
- 256 KByte non-volatile memory (NVM)
- 512 KByte on-chip double word SRAM
- 128 KByte on-chip byte SRAM
- EDAC & Scrub Engine
- xSPI for internal NVM and external (1/2/4/8-bit)
- SPI memory
- External Bus Interface (EBI) for external 8/16/32-bit asynchronous parallel memory
- 8-channel DMA

Peripherals

- 139x GPIO
- Ethernet MAC with QoS
- 2x SpaceWire
- 4x Motor Controller
- 2x ADC 12-bit, 8 input pins (each)
- 4x DAC 12-bit
- 8x Analog Comparator
- 32x Timer/Counter with PWM
- 2x Watchdog + 1x Recovery Watchdog
- 4x UART
- 4x SPI
- 4x I2C
- 4x CAN FD

Operating Temperature

- -55 to +125 °C

Packages

- Plastic 256 BGA
- Ceramic 216 QFP

VA5 Family of RH and RT Dual-Core MCUs

Radiation-Resilient Performance for Extreme Missions

The VA5 family is VORAGO's first generation of dual-core Arm® Cortex®-M55 microcontrollers, offered in both radiation-hardened (RH) and radiation-tolerant (RT) versions. Designed for the extreme demands of space, defense, and autonomous missions, these MCUs deliver dual 32-bit cores with advanced fault tolerance, radiation mitigation, and power efficiency.

Product Availability:

- Engineering Samples: Q1 2026
- Development Kits: Q2 2026
- Qualification Samples: Q2 2026

Application Examples:

- Primary workloads and payloads
- Communications, Command & Control
- System Health & Performance Monitoring
- Propulsion Systems
- Robotics & Automation
- Software-Defined Radios (SDR)
- Antenna Systems & Arrays
- Optical Control Systems
- Additional Mission-Critical Functions

