FRONTGRADE



UT32M0R510 Arm Microcontroller

Mission-Ready Control Solution Delivering Proven Reliability in the Harshest Space Environments

The UT32M0R510 is a 32-bit Arm® Cortex®-M0+ radiation-hardened microcontroller designed for space and high-reliability applications, delivering long mission life and dependable operation in harsh radiation environments. Built using a radiation-hardened-by-design architecture and qualified to QML-Q and QML-Q+, it provides up to 300 krad(Si) TID tolerance, reducing mission risk and extending operational lifetime.

The device integrates a complete analog front-end and dual independent CAN 2.0B controllers, enabling redundant, fault-tolerant system architectures while minimizing external components, size, and power consumption. Flexible boot and configuration options via SPI, UART, CAN, or JTAG simplify system integration and support adaptable spacecraft designs.

Advanced debug, safety, and memory protection features improve software reliability and ease certification, while multiple low-power modes help designers meet strict power budgets. Compatibility with the Arm Keil® development ecosystem accelerates development, lowers software risk, and reduces time to mission readiness.

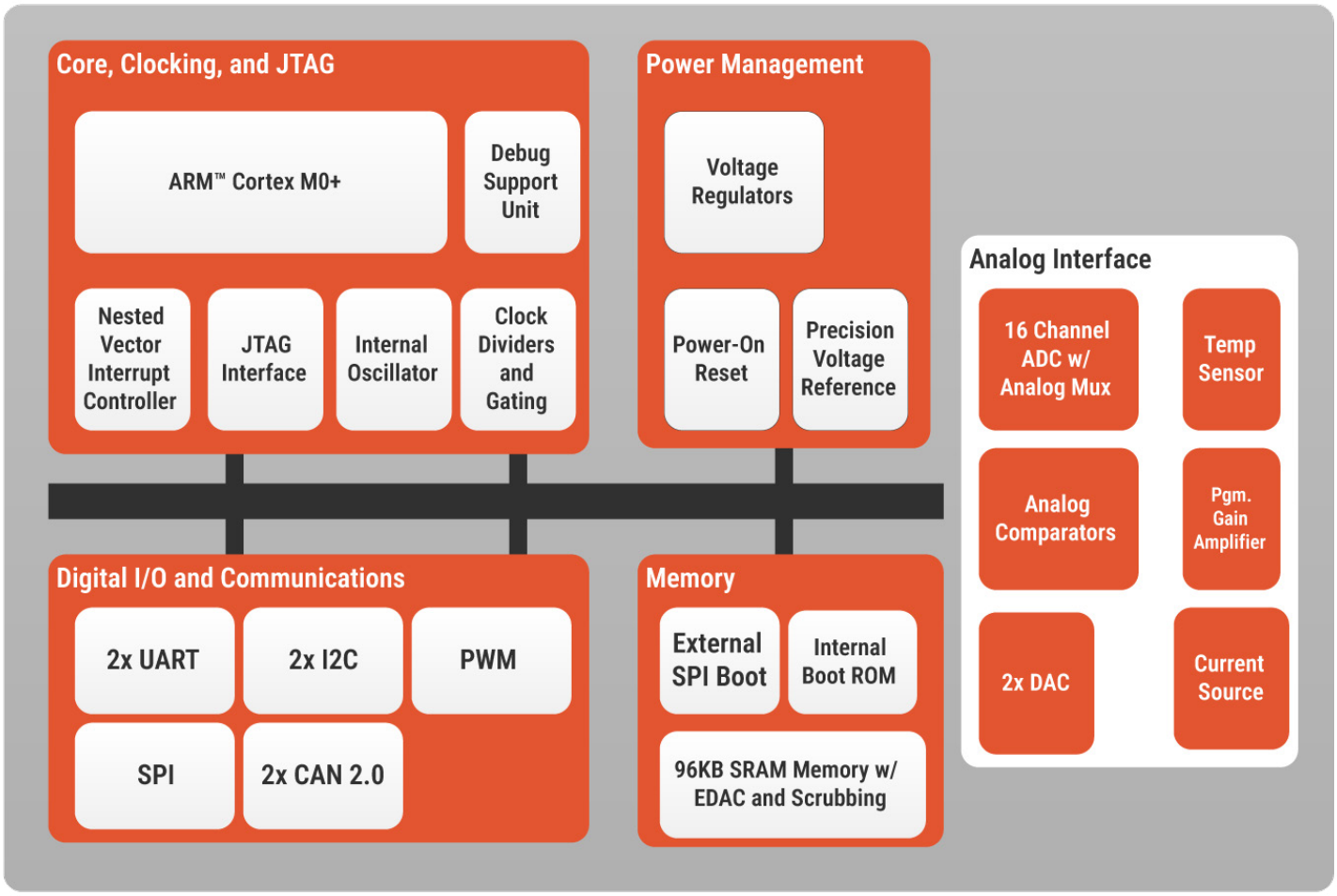
Features

- Total Ionizing Dose (TID) tolerance up to 300 krad(Si)
- Suitable for long-duration missions in harsh radiation environments
- 32-bit Arm® Cortex®-M0+ Core
- Qualified and screened to QML-Q and QML-Q+
- Robust Debug and Safety Features
- Two independent CAN 2.0B controllers

Applications

- Spacecraft distributed control systems
- Command and data handling (C&DH) subsystems
- Redundant avionics control networks
- Satellite payload control electronics

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Features	ARM M0+ Configurable Option	UT32M0R510 Configuration
Interrupts	0 – 32	32
Data Endianness	Little-endian or big-endian	Little-endian
SysTick Timer	Present or absent	Present
Number of Watchpoint Comparators	0, 1, 2	2
Number of Breakpoint Comparators	0 - 4	4
Multiplier	Fast or small	Fast (Single Cycle)
Wakeup Interrupt Controller	Supported or not support	Supported
Vector Table offset Register	Present or absent	Present
Unprivileged/Privileged Support	Present or absent	Present
Memory Protection Unit	Present or absent	Present
Reset All Registers	Present or absent	Present
Debug Configuration	Present or absent	Present
Micro Trace Buffer	Present or absent	Present

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