

## MCU320 SPACE FLIGHT ON-BOARD COMPUTER

SINGLE BOARD COMPUTER FOR SMALL  
SATELLITES OR LAUNCH VEHICLES

### DESCRIPTION

The MCU320 Single Board Computer is a medium performance, highly customizable, multiple interfaces, oriented radiation hardened device designed for hostile radiation environments, such as those encountered by LEO satellites and launch vehicles.

The board outline is 6U LxWxH: 160 mm x 233 mm x 25 mm.

### FEATURES

- Single Board Computer architecture
- LEON3 Processor, 32-bits SPARC V8 instruction set.
- Modular design, FPGA-based core, easily adaptable to new requirements/interfaces.
- Latch-up protection mechanism.
  
- Memory features:
  - **RAM:** 128 MB SDRAM with triple modular redundancy (TMR).
  - **Boot Memory:** 4 MB NOR flash with EDAC protection.
  - **Program Memory:** 32 MB NOR flash with EDAC protection.
  - **Mass Memory:** GB NAND Flash.

### INTERFACES:

- 1 x SpaceWire (nominal + redundant links).
- 1 x 10/100 Mbps Ethernet (only for engineering models).

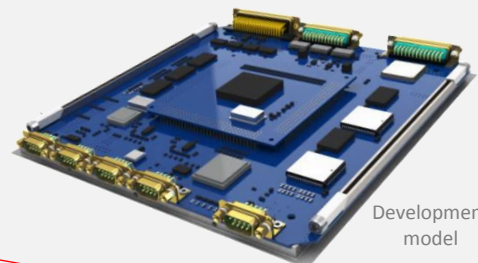


- 4 x UART/RS422.
- 1 x SPI master + 6 x SPI slaves.
- 8 x GPIO, software configurable input or output.
- 4 x PWM.
- 2 x PPS inputs with detection and distribution core.
- 24 x Analog inputs.
- 8 x Internal analog interfaces for voltage and temperature self-monitoring.
- 1 x Harbus: memory mapped IO (10 address bits, 8 data bits, 5 control bits).
- 1 x JTAG debug interface.
- 1 x UART / RS232 debug interface.

- Traceable reset source (power on, watchdog, hard-command and software).
- Interrupt controller with up to 15 interrupt sources.
- 4 x 32-bit Timers.
- 1 x Watchdog.
- Targeted for Microsemi RTAX2000 or RT ProASIC 3L FPGAs.
- Performance: 1.3 DMIPS/MHz, up to 25 MHz.
- Maximum power consumption: 10 W.
- NASA Level 1 and Level 2 parts, ITAR regulated.
- BSP and drivers for RTEMS Real-Time operating system.

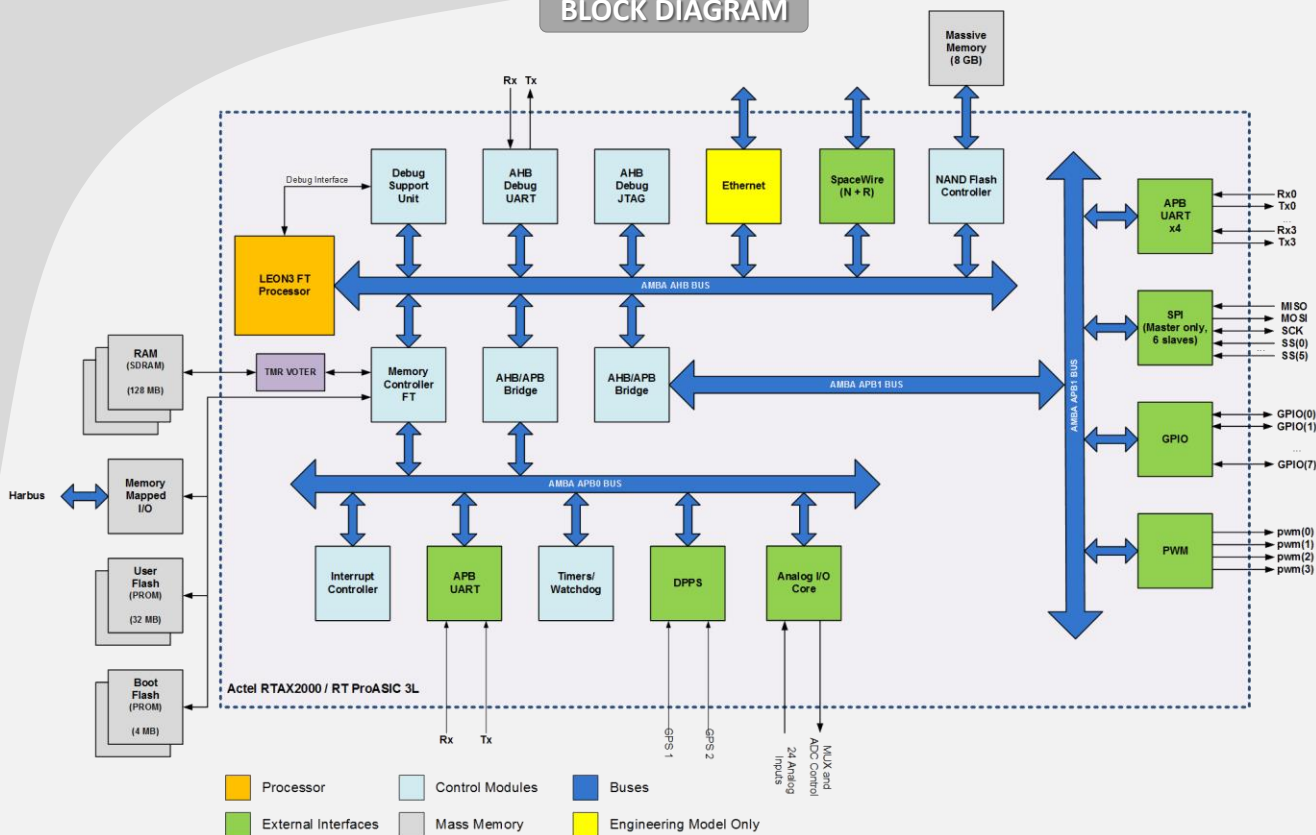
### APPLICATIONS

- Command & data handling, telemetry logger, AOCs or housekeeping on-board computer for small to medium LEO satellites.
- Guidance & navigation, command & data handling or housekeeping On Board Computer for Launch Vehicles.

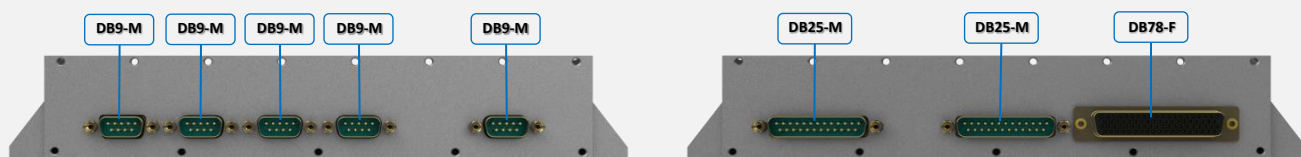


Development  
model

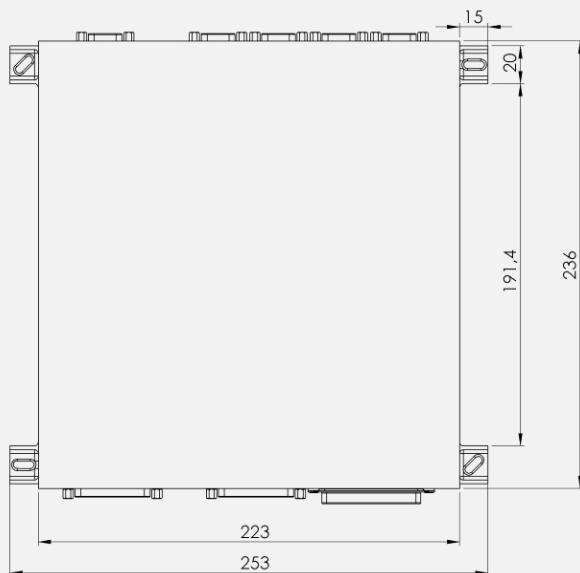
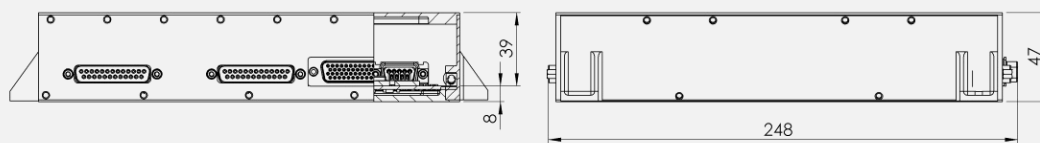
## BLOCK DIAGRAM



## CONNECTORS



## MECHANICAL OUTLINE



(dimensions are in mm)

