

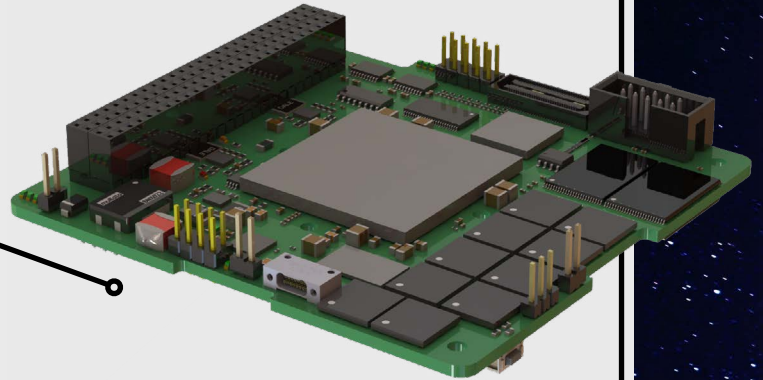
# CAVU

## AEROSPACE UK



Cubesat Onboard Computer

# OBC-Cube-104



### PIONEERING SPACECRAFT COMPUTING

The CAVU OBC-Cube-104, a cutting-edge Cubesat Onboard Computer, leverages Flash Based SmartFusion2 FPGA technology. This device is a testament to the strides made in space technology, embodying the latest advancements in the field.

It's designed to provide reliable and efficient computing power for Cubesat missions, ensuring optimal performance even in the harsh conditions of space and providing consistent performance throughout its lifespan.



### MEETING COMPUTING NEEDS

The SEU immune Flash Based SmartFusion2 FPGA technology, central to this onboard computer, enables high-speed processing, programming flexibility, and low power consumption. The unique Flash architecture negates the need for bit stream config memory, thereby amplifying the device's reliability. This combination of features positions it as a robust and efficient solution for Cubesat missions.



### KEY FEATURES

- SEU Immune Smartfusion2 FPGA Platform
- Radiation-Immune MRAM/FRAM Memories
- Up to 3 Selectable TMR Boot Regions
- TMR SLC NAND Flash Storage
- Multiple EDAC-Protected Serial Peripherals
- Open-Source Software Support
- Customizable CameraLink & JPEG2000 Core



### CUBESAT MISSION CHOICE

In conclusion, the CAVU OBC-Cube-104, equipped with an ARM-M3 core on FPGA, provides ample processing power and adaptability, making it suitable for various Cubesat missions. Whether your mission is scientific research or commercial satellite deployment, the CAVU OBC-Cube-104 is prepared to fulfil your onboard computing requirements.



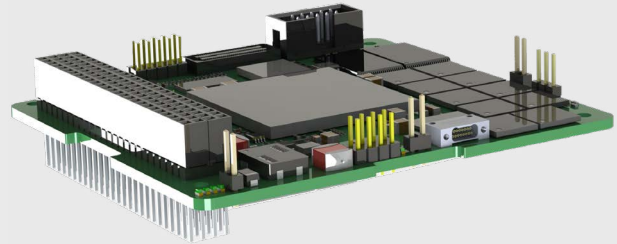
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### OBC-Cube-104



#### PROCESSOR

ARM Cortex-M3 on FPGA  
 Microchip/Microsemi SmartFusion2 Flash Based FPGA  
 FPU on FPGA Upon Request  
 150 DMIPS @ 128MHz  
 SoftConsole or Keil Programming and Debug via JTAG



#### BUDGET

**Dimensions:** Cubesat Standard  
**Mass:** 75gr  
**Power Supply:** 5V ±5%  
**Power Consumption:** 1W ~ 2W



#### MEMORY

**RAM:**  
 112Mbits MRAM 40 bits width (96Mbits+16Mbits ECC)

**ROM:**  
 48Mbits MRAM (Configurable as Triple 16Mbits)  
 512KB eNVM

**Nonvolatile Memory:**  
 Upto 192Gbit SLC NAND Flash (Triple 64G)  
 4Mbit Serial FRAM  
 256M Serial NOR



#### ENVIRONMENT

**Radiation Hardness:**  
 Total Ionizing Dose: 30Krad (Si)/yr  
 Latch-up Immune  
 SEE @ 60MeV

**Temperature & Pressure:**  
 -40°C to +85°C @ 10<sup>-8</sup> bar

**Shocks:**  
 ISS CubeSat Deployer Compatible

**Random Vibrations:**  
 ISS CubeSat Deployer Compatible



#### INTERFACES

**SERIAL**

CAN2.0	4
RS422	8
RS485	4
RS232	2
I2C	2
SPI	2

**DIGITAL/ANALOG**

Digital I/O	20~60
ADC	8

**High Speed Interfaces**

Space Wire	2
CameraLink (Upon Request)	



#### SPECIAL FEATURES

**Expected Life-time:**  
 3 to 5 years in LEO

**On-Board Current & Temperature Monitoring**  
**On-Board Watchdog**  
**JPEG2000 Encoder (upon request)**