2NDSpace

MASTER OBC

CUBESAT ON-BOARD COMPUTER

MASTER is 2NDSPACE's flexible OBC, offering high versatility combined with **performances** and **reliability**. The product is designed to ensure high robustness and a wide range of capabilities and interfaces to support CubeSats and nanosatellite platforms to meet most operational-demanding missions.

The product family includes two solutions fully based on 2NDSPACE proprietary IP: MASTER, a flexible OBC designed for a wide range of CubeSat applications, and MASTER II, a cutting-edge solution offering exceptional performance and flexibility for demanding commercial missions and high-end small satellites.

Dual-core processor for real-time operation

Over-The-Air updates for in-orbit software implementation

13 communication interfaces and multiple sensor integrations

Supports FreeRTOS and MBed software ecosystems

Integrated libraries for interface with 2NDSPACE avionics

Integrated libraries for interface with reference COTS

Expandable with CHIEF payload data module, adding dedicated payload data processing unit



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PRODUCT **FEATURES**

	MASTER	MASTER-CHIEF
Dimensions [mm]	97 x 92 x 20	97 x 92 x 20
Mass [g]	130 g	145 g
Section 1 Processor	ARM Cortex M7 @ 480 MHz + Cortex M4 @ 240 MHz	ARM Cortex M7 @ 480 MHz + Cortex M4 @ 240 MHz
Section 2 Processor (Payload data)	-	Cortex M7 400MHz 1MB RAM size with ECC - 2MB Program memory size
RAM	32 MB SDRAM	32 MB SDRAM
Flash Memory	16 MB NOR flash + 1Mb FRAM	16 MB NOR flash + 1Mb FRAM
Operating System	FreeRTOS; Mbed	FreeRTOS; Mbed
Storage	2x SD slots up to 32GB	3x SD slots up to 32GB
Interfaces	2x CAN, 2x RS422, 2x RS485, 2x UART, 2x I2C, 2x SPI	2x CAN, 2x RS422, 2x RS485, 2x UART, 2x I2C, 2x SPI • High-Speed LVDS Interface >10Mbps
ADC Inputs	8x configurable	8x configurable
Sensors	3x IMU 6DOF / 1x Temperature Sensor	3x IMU 6DOF / 1x Temperature Sensor
Operating Voltage	5V	5V
Peak Power	2W	2W
Operating Temp.	-40°C to +85°C	-40°C to +85°C

QUALIFICATION AND **ACCEPTANCE TEST**

	Functional/AIT	Electrical control	Vibration test	Mechanical Shock	TVAC Test
Qualification Test	✓	✓	NASA GEVS: GSFC-STD-7000A ESA ECSS-E-ST-10-03C	NASA GEVS: GSFC-STD-7000A ESA ECSS-E-ST-10-03C	NASA GEVS: GSFC-STD-7000A ESA ECSS-E-ST-10-03C
Acceptance Test	✓	✓			

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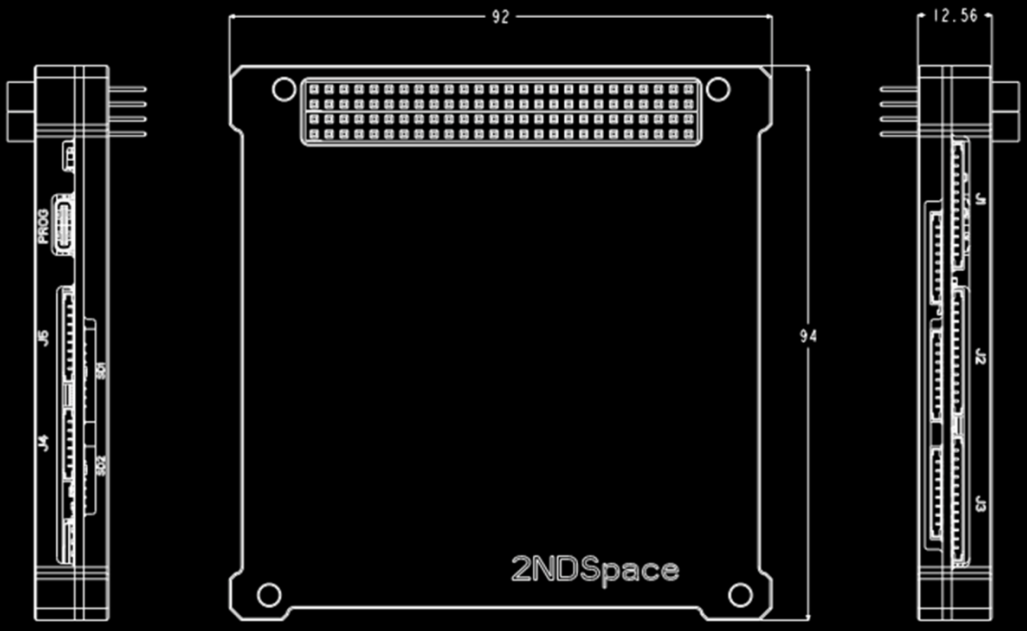
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MASTER is designed to meet the needs of CubeSat platforms from 1U to 16U, offering high versatility and consisting of a dual-core processing unit with integrated memory, data storage, and a comprehensive set of communication interfaces.

- Modular architecture: Dual-core processor for real-time operation and high-performance computing
- Expansion module for integrating and additional independent OBC
- OTA Support: Over-The-Air updates for continuous software improvement
- Wide Range of Interfaces: 13 communication interfaces and multiple sensor integrations
- Compatible Environments: Supports FreeRTOS and MBed software ecosystems



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