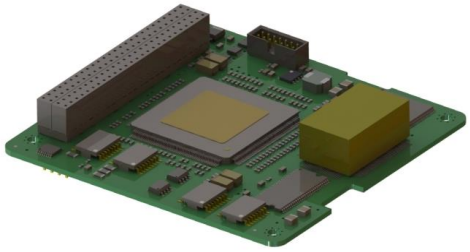
MULTIPURPOSE ADAPTER GENERIC INTERFACE CONNECTOR (MA61C)

CUBESAT version

Description

The Multipurpose Adapter Generic Interface Connector (MA61C) CubeSat is an innovative command and data handling system that allows connecting different subsystems to the CubeSat onboard software (which can be hosted externally or internally) without driver installation or user configuration.

The core of MA61C is the GR712RC LEON3-FT SPARC V8 processor, which supports multiple interfaces. MA61C CubeSat holds SpaceWire, CAN-bus, I2C, GPIO, RS422, RS485, RS232 and SPI interfaces that can be used for command and control of subsystems. All interfaces besides SPI and I2C can be used as inputs and outputs. The processor also comes with a built-in timer based on an onboard oscillator.



MA61C holds a database of drivers, enabling plug and play functionalities such as device recognition, self-configuration and driver installation. It is equipped with an internal memory of 32Mbit of SRAM 3Gbit of SDRAM,and 64Mbit of FLASH for storage of onboard software, drivers, and data.

The embedded API is an intelligent system that can scan connections, detect incoming data, route and convert data between the subsystem and the onboard software. The package includes a Graphical User Interface (GUI) for Windows to monitor and debug the system.

What does MA61C CubeSat do?

The MA61C CubeSat automatically adapts between communication interface and protocol standards of different suppliers to the unique standard of the onboard software. This simplifies the communication between the onboard software of the CubeSat and its subsystems such as AOCS sensors and actuators, communication, power and payload.

Key Features

Physical properties

- Operating Temperature: -40 degC to +85 degC
- Quality: ISO standard
- Size: 95.89 mm x 90.17 mm
- Weight: 150grams

Processor:

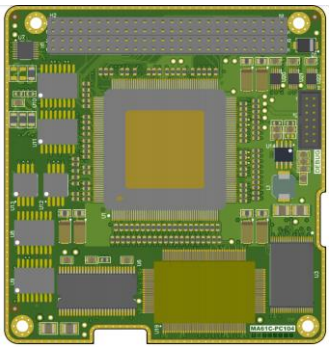
GR712RC dual-core 32-bit LEON3 fault-tolerant SPARC V8 processor 50 MHz clock frequencies

Onboard software:

- Plug and play
- Embedded driver database
- Routing and converting
- Data Buffering

Power Supply: 5V and 3.3V

Interfaces on the board PC-104:



- 2 x SpaceWire
- 2 x CAN-bus
- 1 x RS232
- 1 x RS422
- 3 x RS485
- 1 x I2C Master
- 1 x SPI
- 11 x GPIO

Onboard Memory

- SRAM - 2 x 16 Mbit
- SDRAM - 1 x 3Gbit
- FLASH - 64 Mbit

Port Speed

- SpaceWire - Up to 200 Mbit/s, nominal 10Mbit/s
- CAN-bus - 1Mbit/s
- I2C interface - up to 0.4Mbit/s
- SPI interface - up to 20Mbit/s
- RS232/RS422/RS485 interfaces - up to 10Mbit/s
- Debug port - 1 Mbit/s

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