

GR716A

The GR716A device is a Radiation-hard, Fault Tolerant, Single core LEON3 SPARC V8 processor.

The microcontroller features a 16-bit instruction set: LEON-REX for improved code density. It supports many different standard interfaces such as SPI, I2C, SpaceWire, 1553 and more. Two ADC and four DAC are available as analogue frontend. On-chip LDO and integrated PLL is also available.

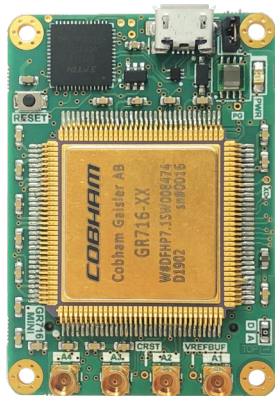
A complete development environment is available with development boards, debugger (GRMON3) and simulator (TSIM3). The software ecosystem includes partner software and software toolchains provided by CAES, covering compilers, operating systems, and boot loaders.



GR716 MINI Evaluation Board

The GR716 MINI is powered via a micro-USB cable, which also serves as debug link to a development PC.

The evaluation board is ideal for rapid software development.

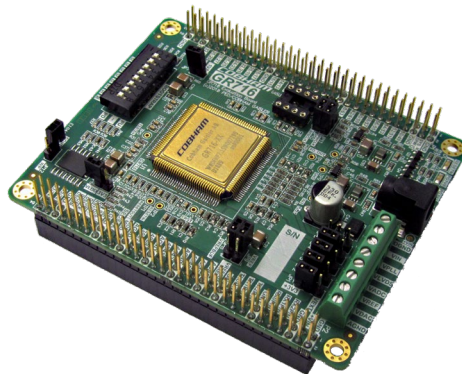


50 x 35 mm, Scale 1:1

GR716-BOARD-Daughter Development Board

The GR716-BOARD is built using the format of CubeSats and stackable pin headers, providing access to all GR716 features and interfaces.

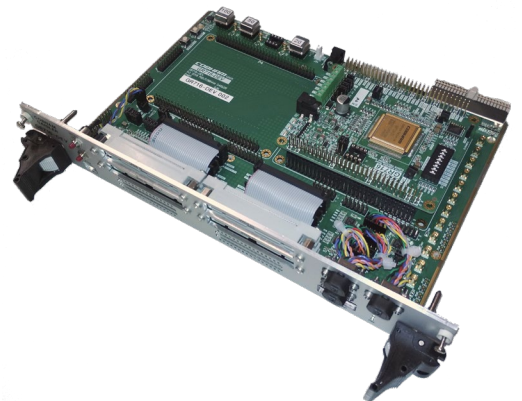
The GR716-BOARD is a daughterboard for the optional GR-CPCI-GR716 board.



GR-CPCI-GR716-DEV-Mother Interface Board

The GR-CPCI-GR716 development board is built using the standard 6U cPCI format with a front panel for connecting external interfaces.

The GR-CPCI-GR716 is the motherboard for the GR716-BOARD.



Picture includes the GR716-BOARD

More information about the boards: gaisler.com/GR716-boards

Applications

The microcontroller is well suited for space and other hi-rel applications. It is ideal for satellite supervision, monitoring and control. Distributed control, such as sensor bus control, is another popular application.

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Features:

- LEON3FT - Fault-tolerant SPARC V8 32-bit processor, 50 MHz
 - LEON-REX – extension with 16-bit instructions: improved code density
 - Floating Point Unit
 - Memory protection units
 - Non-intrusive advanced on-chip debug support unit
 - Determinism: Multi-bus, fixed interrupt latency, cache-less architecture
- Performance: >90 DMIPS
- External EDAC memory: 8-bit PROM/SRAM, SPI, I2C
- PacketWire with CRC acceleration support
- 2x ADC 11bits resolution @ 200ksps, 4 diff or 8 single channels
- On-chip ROM boot loader supporting remote network boot
- DAC 12bits @ 3Msps, 4 channels
- Power-on-Reset and Brown-out-detection
- Temperature sensor, Integrated PLL
- On-chip regulator for 3.3V single supply
- Radiation performance: TID: 100 krad (Si), SEL: LET>118 MeV-cm2/mg
- Power consumption: < 400mW at 40 °C
- Temperature range: -55°C / +110°C (case)
- More information: gaisler.com/GR716

Interfaces:

- SpaceWire interface with time distribution support, 100 Mbps
- MIL-STD-1553B interface
- 2x CAN 2.0B controller interface
- UARTs, Timers with Watchdog, mixed GPIO
- I2C
- SPI with SPI-for-Space protocols
- Programmable PWM interface
- Interrupt controller, Status registers, JTAG debug, etc.

Package:

- 132-Pin Ceramic Quad Flat Pack, Pitch: 0.635mm

Qualification status:

- Screening and qualification tests Q4 2021. Extended life test Q1 2022. Qualification tests as per PCA defined by ESCC Basic Specification No. 2567000. Screening tests as per ESCC 9000.

