

TREVO

Modular Architecture with
High-performance SDR

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A GMV COMPANY

TREVO is a **modular high performance SDR platform** designed for small satellites (Nanosat and Microsat). Its motherboard can handle **different numbers of SoC and transceivers**, integrating in a **single subsystem** all the radio chain and processing units to support the most demanding satellite software applications.

TREVO is the core platform to evolve and build complex space **payloads**.

HARDWARE FEATURES

- SoCs based on Zynq UltraScale+ family
- Multi-core processing and FPGA flexibility
- 70 MHz - 6 GHz frequency
- 56 MHz channel bandwidth
- **Up to 4 external modules**
 - 2 x SoC and 2 x TRX
 - 1 x SoC and 1 x TRX
 - Other options are available upon request
- **Plugging of different RF FrontEnds**
 - UHF
 - VHF
 - S-band



The modularity and flexibility of the hardware allows different configuration options, depending on the application.

Multiple applications can be configured on the same board.

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TREVO is a core subsystem for communication payloads, fit for a wide variety of applications.

Alén Space can provide the platform stand-alone (for further SW developments) or the option of a closed payload for the following applications: AIS, ADS-B, feeder link.

SOFTWARE HIGHLIGHTS

- Embedded Linux
- Safe in-orbit updates
- **Radio applications**
 - GNURadio support
 - SoapySDR driver



Scalable, Flexible, and Configurable

MOTHERBOARD	UP TO 2 SoCs	UP TO 3 TRANSCEIVERS
<ul style="list-style-type: none">• PC/104 form factor• Interfaces<ul style="list-style-type: none">• CAN, UART, I2C for housekeeping, GPIOs• Umbilical connector for ground testing• JTAG for MCU and SoCs• USB (FTDI x 4 UARTs)• 1000 Base-T for SoCs• 2x Micro SD card slots (one for each SoC*)• Ethernet connection for SoC and ground testing• MCU<ul style="list-style-type: none">• Dual Cortex-M4• 2MB flash + 1Gb data + 8Mb MRAM + 256Mb SDRAM• RTC• Power consumption<ul style="list-style-type: none">• Nominal power: 775mW	<ul style="list-style-type: none">• Processor<ul style="list-style-type: none">• Zynq UltraScale+ MPSoCs• Compatible with CG and EG family (up to ZU5EG)• Memory<ul style="list-style-type: none">• 4GB DDR4 with ECC + 1Gb QSPI flash + 4Mb MRAM• Interfaces<ul style="list-style-type: none">• SD 3.0, UART, CAN, JTAG, RGMII...• Power consumption<ul style="list-style-type: none">• Medium load: 3.6W• High load: 8W*	<ul style="list-style-type: none">• Transceiver<ul style="list-style-type: none">• 70MHz - 6GHz• 2 simultaneous channels at RX and TX• 2 x TX and 3 x RX channels• Oscillator<ul style="list-style-type: none">• Crystal oscillator (TCXO) with +- 100ppb• Power consumption<ul style="list-style-type: none">• Maximum: 1.5W• Full duplex (RX and TX): 1.05W

*Depends on the use mode, used bandwidth and maximum transfer power