TREVO

MODULAR HIGH PERFORMANCE SDR PLATFORM

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, DVB-S2, feeder link.

Software Highlights

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

Choose The Right System: Scalable, Flexible and Configurable

MOTHERBOARD

- PC/104 form factor
- Interfaces
  - 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
  - Dual Cortex-M4
  - 2MB flash + 1Gb data + 8Mb MRAM + 256Mb SDRAM
  - RTC
- Power consumption
  - Nominal power: 775mW

UP TO 2 SoCs

- Processor
  - Zynq UltraScale+ MPSoCs
  - Compatible with CG and EG family (up to ZU5EG)
- Memory
  - 4GB DDR4 with ECC + 1Gb QSPI flash + 4Mb MRAM
- Interfaces
  - SD 3.0, UART, CAN, JTAG, RGMII...
- Power consumption
  - Medium load: 3.6W
  - High load: 8W*

UP TO 3 TRANSCEIVERS

- Transceiver
  - 70MHz - 6GHz
  - 2 simultaneous channels at RX and TX
  - 2 x TX and 3 x RX channels
- Oscillator
  - Crystal oscillator (TCXO) with +- 100ppb
- Power consumption
  - Maximum: 1.5W
  - Full duplex (RX and TX): 1.05W

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

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