

# TOTEM

## HIGH PERFORMANCE SDR PLATFORM WITH FLIGHT HERITAGE



**TOTEM is a flight proven high performance SDR platform designed for nanosatellites.** A SoC with an embedded Linux and programmable logic plus a wide frequency range transceiver allow TOTEM to operate in the most used nanosatellite frequency bands.

Its **in-orbit reconfigurability** makes it very convenient for any communication nanosatellite.

### Main Features

- PC/ 104 form factor
- Zynq-7000 SoC
- Wideband transceiver
  - **70 MHz - 6 GHz**
  - Up to 56 MHz bandwidth
  - 2 x TX and 3 x RX channels
- **1 GB DDR3L** (512 MB with ECC)
- **1GB NAND Flash**
- 4 Mb MRAM
- **Multiple Interfaces**
  - CAN, Ethernet, UART, JTAG, 12 C
- Mass: < 130g
- 5V power supply
- Power consumption<sup>1</sup>
  - 2.65W in TX mode<sup>2</sup>
  - 2.25W in RX mode
  - 1.4W in stand - by mode
- **Fronted interface as piggyback board**

<sup>1</sup>Consumptions depend on application.

<sup>2</sup> 7dB m output ,BW = 56 MHz and 30 MSPS

### Easiest Way to Communicate in Space



# TOTEM

HIGH PERFORMANCE SDR PLATFORM  
WITH FLIGHT HERITAGE



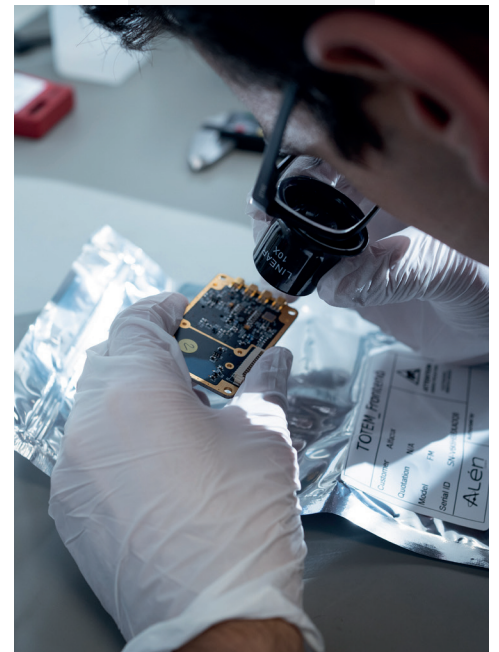
## Software Highlights

- Embedded Linux
- Safe in-orbit updates
- TOTEM TMTC based on PUS (ESA)
  - HK, Event Report, TC execution verification, specific TOTEM services...
- Radio applications / waveforms development
  - SoapySDR driver provided
  - GNURadio support
  - Custom IP cores integration in FPGA



## Customize TOTEM with External Frontends

Add an external RF frontend as piggyback board making it fully operational in the desired frequency band. Check our Plug&Play frontends!



Small Satellites: Turnkey  
Solutions for Space Business

[www.alen.space](http://www.alen.space)  
[info@alen.space](mailto:info@alen.space)  
+34 986 119 366