

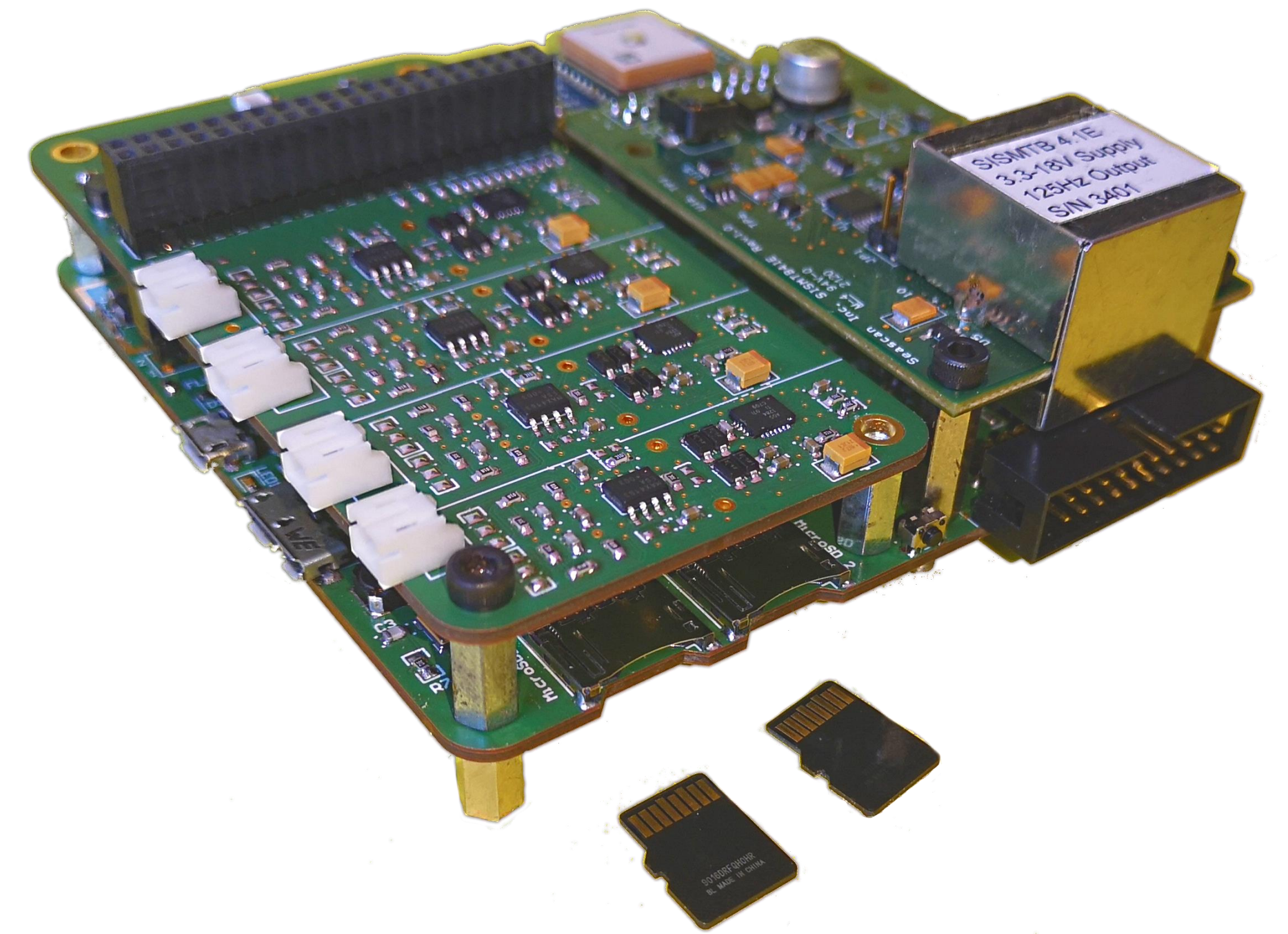
A Rapid Response Ocean Bottom Seismometer for PREST

Open source datalogger

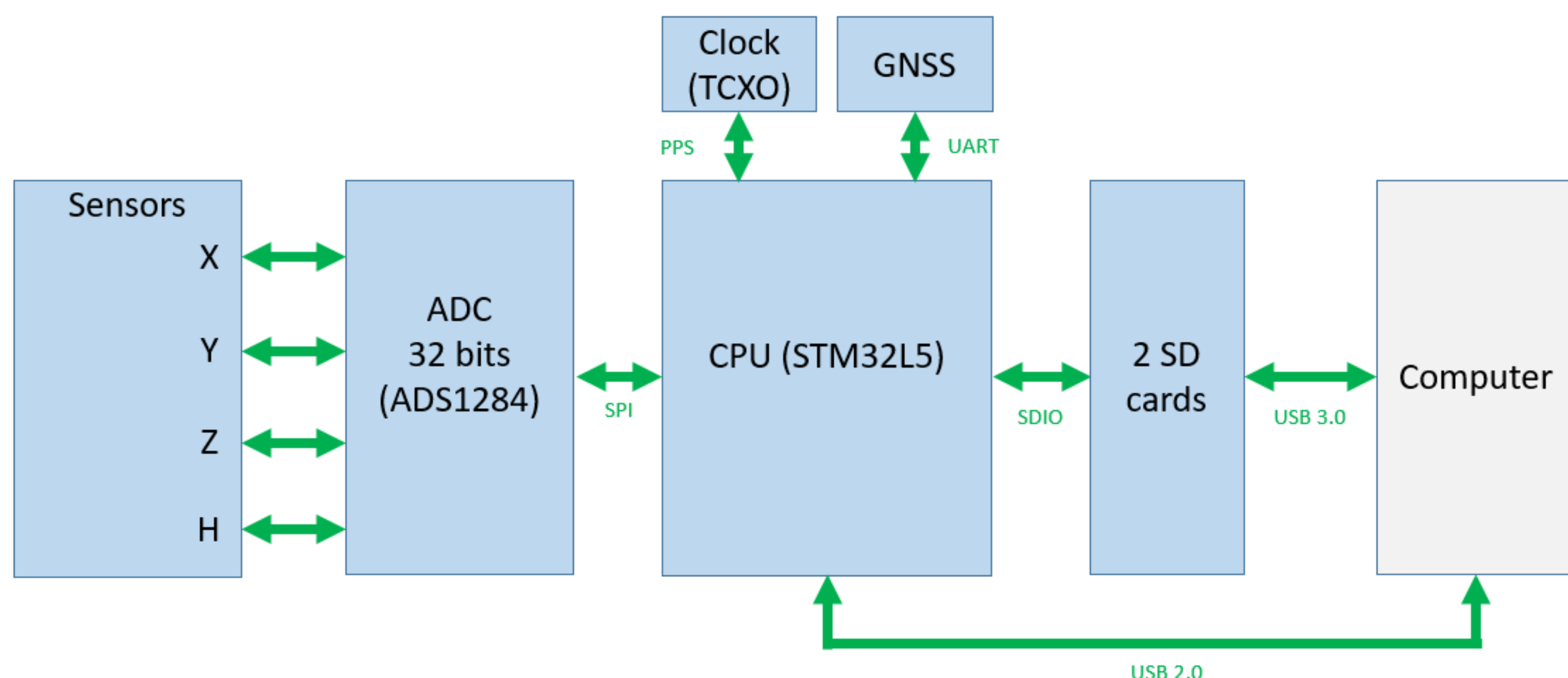


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Ocean bottom seismometers (OBSs) supplement land networks for seismic monitoring of nearshore/offshore regions. OBSs are usually composed of a 3-axis seismometer and a hydrophone to measure seismic and volcanic activity on the ocean floor. We present a prototype rapid response OBS electronic/acquisition system for seismic-volcanic crises. The specificities of such a system are : a simplified man-machine interface to prepare deployments and retrieve information, a small size and power consumption allowing a maximum autonomy in a limited space.

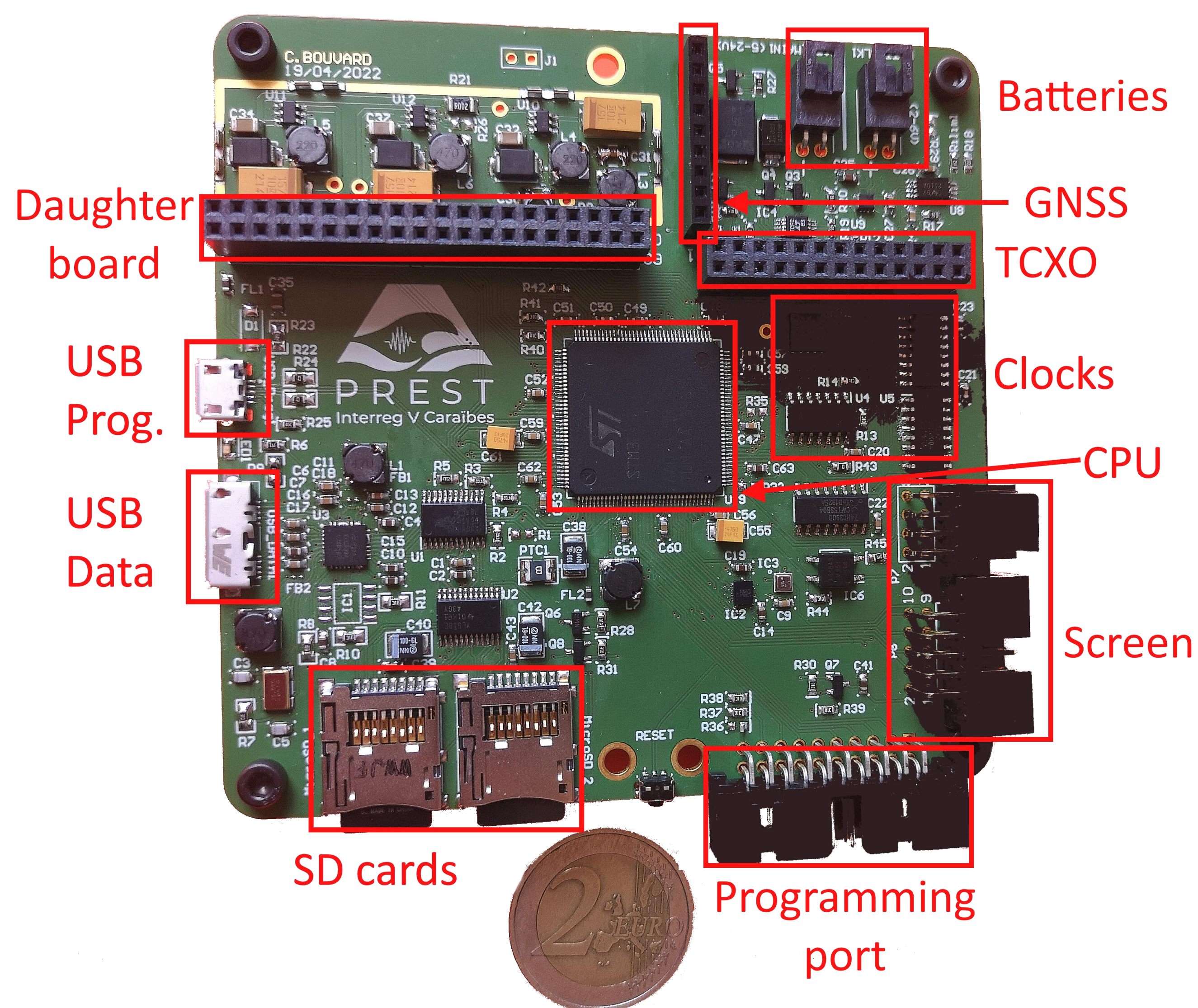


Electronics diagram



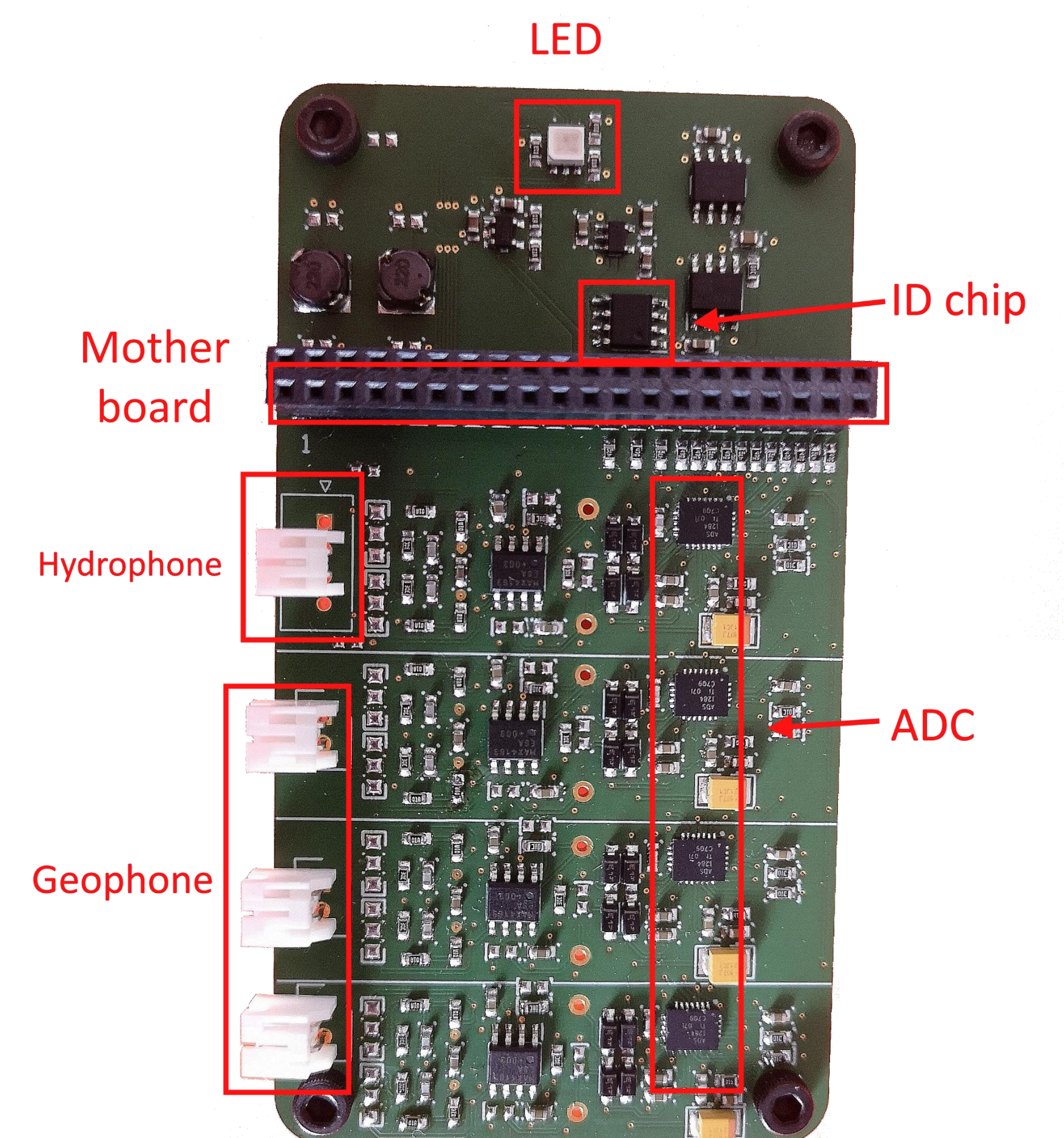
Main features

- Quick and easy mission preparation
- Fast data recovery
- Minimum size and power consumption without compromising recording quality
- Modular and extendable electronics that accept other sensor types
- Visualization of parameters with an e-ink paper screen without power



The "mother" board

Recover, process, time-stamp and store data from ADC to SD card via the processor.



The "daughter" board

Convert signals from the seismometer and the geophone into readable and interpretable data for the "mother" board. This card is design according to the PREST needs.

Technical specifications

- Storage : Up to 1TB (2 SD card slots)
- Data format : MINI SEED
- Ultra stable temperature compensated clock : < 1 second / year
- Power consumption : 250mW at 100sps
- Automatic synchronization and time-drift measurement
- Sampling frequency : from 200 to 4000 sps
- Sensors : 3-component geophone & 1 hydrophone
- Power supply : +5V to +24V
- CPU : STM32L552
- Development : CNRS / IPGP