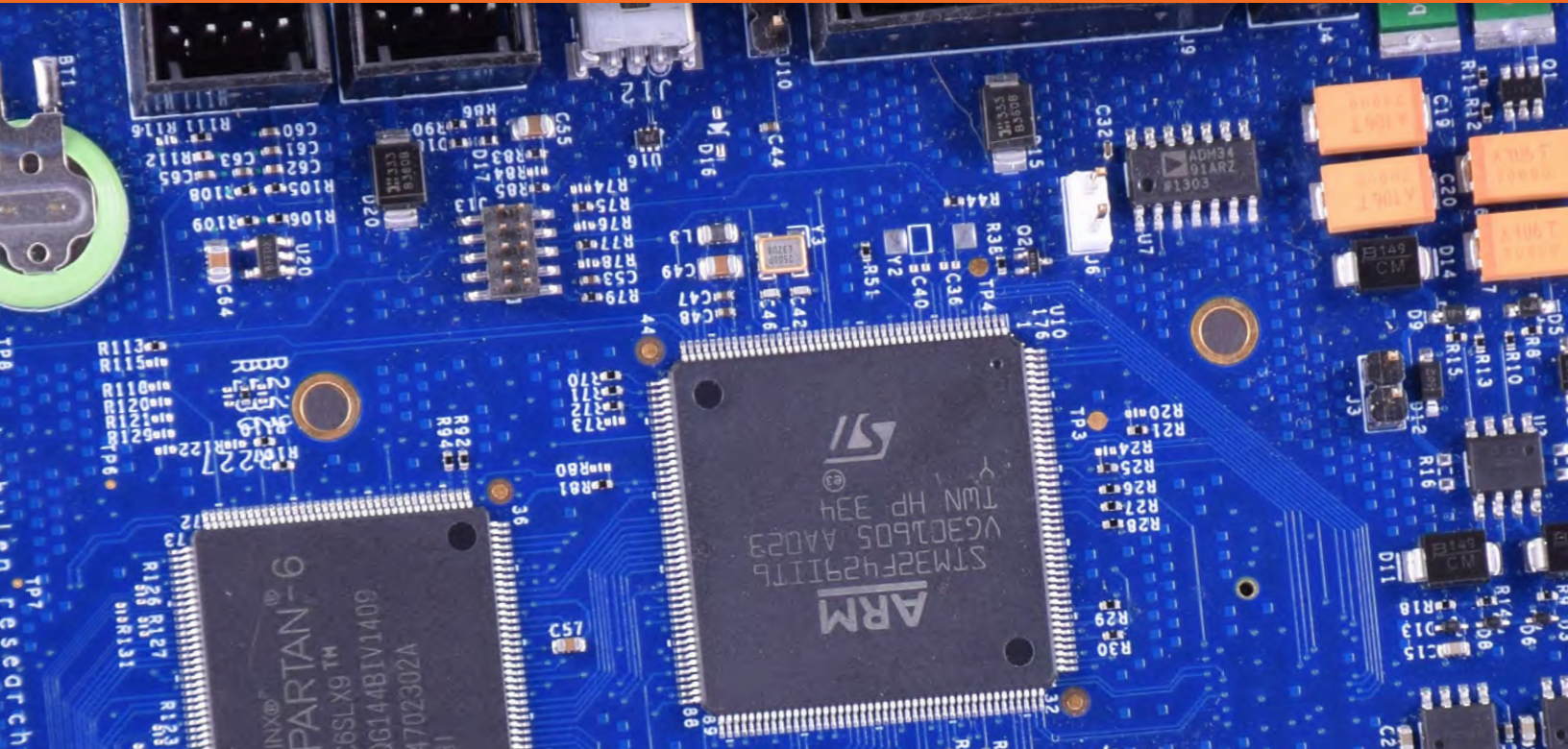


# TR-BLUE

## FLEXIBLE OEM SENSOR PROCESSING



## LOW POWER, HIGH CAPABILITY DATA ACQUISITION & PROCESSING

TR-Blue is a low power and highly capable OEM data acquisition and signal processing system, specifically designed for long term and autonomous deployments. TR-Blue is modular, it consists of an extremely flexible processing engine with a field programmable gate array (FPGA) and a tightly integrated ARM Cortex M4 processor for signal processing with expansion connectors capable of interfacing to almost any analog sensing system.

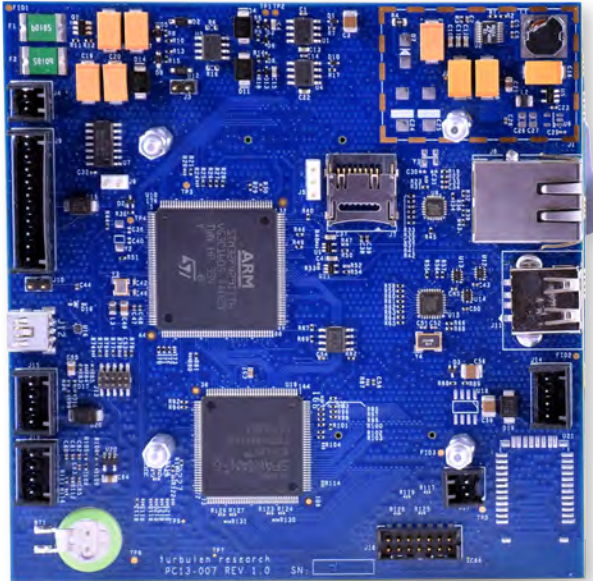
Turbulent Research provides analog signal conditioning and digitization expansion boards that mate directly with TR-Blue for applications in underwater acoustics, sensor arrays, vibrational analysis and environmental sensing. Users of TR-Blue can get access to Turbulent Research' firmware libraries, real time operating system, board support package, peripheral drivers or application specific signal processing functions.

TR-Blue has been optimized for low power consumption while still giving users access to serious processing horsepower and the flexibility to interface to just about any sensing system. Traditionally, researchers and scientists have had to use off the shelf single board computers or development kits to develop their new and innovative instruments, sacrificing optimized power consumption and system flexibility, TR-Blue is a platform designed to meet the real needs of these users without compromise.



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Turbulent Research designs and develops marine electronics products for rich & robust real time data acquisition and signal processing. Our company was founded by engineers with a passion for design, signal processing and delivering world class products.



## TECHNICAL SPECIFICATIONS

**POWER** Supports Seamless Power Multiplexing for Internal/External Power (10-25 V)

USB Power: 5 V DC

Average Power Consumption : 100 mW – 1.0 W depending on use

Less than 1 mW in Sleep Mode

**PROCESSORS** ARM Cortex M4 (180 MHz CPU, Floating Point Support)

Xilinx Spartan 6 FPGA

**INTEGRATED PERIPHERALS** 10/100 Ethernet (PTP supported)

RS422 (Or 232), 3x Expansion UARTS

Host High Speed USB

Device Full Speed USB

Bluetooth

Real Time Clock

3 Axis Accelerometer

3 Axis Compass

Temperature Sensor

**MEMORY** 1 MByte Flash

256 kByte internal SRAM, 1 Mbyte External SRAM

1 Mbit serial EEPROM

On Board External Micro SD card slot

**EXPANSION** FPGA And ARM processor pins brought out to two high speed expansion connectors supporting: SPI, I2C, SDIO, GPIO, UART, TIMERS and any custom IO through the FPGA

**EXPANSION BOARDS AVAILABLE FOR:** Multichannel analog to digital conversion (16,24 bits)

Broadband Signal Generation

Interfaces to other digital instruments (RS232 or Ethernet)

Custom Input/Output

GPS

Real Time Communications over RF, cellular or Iridium

*\*Specifications subject to change without notice.*

## KEY FEATURES

- **LOW POWER FOR LONG TERM** Autonomous Deployments
- **FIRMWARE AND SIGNAL PROCESSING SUPPORT** Out of The Box
- **CUSTOMIZED DATA ACQUISITION**

## PRODUCT APPLICATIONS

- Underwater Acoustics and Signal Processing
- Sonar
- Custom Data Acquisition
- Long Term Deployments
- Low Power Instruments Requiring Real Time Analytics
- Multi-Sensor Ocean Observation

