

Overview

NanoM is a 10DOF sensor platform with 3-axis accelerometer, 3-axis gyro, 3-axis magnetometer and barometric pressure sensor. NanoM has three processor options: STM32F042, STM32F072 and STM32F303. STM32F processor includes a rich set of internal peripherals. NanoM is available with or without sensors.

Features:

- Three processor options:
 - STM32F042 - 48MHz
 - STM32F072 - 48MHz
 - STM32F303 - 72MHz
- 12bit DAC running at 1MSPS
- 12-16bit A/D running at 2MSPS
- Five USARTS
- Two SPI interfaces
- On chip DFU boot loader for software field upgrades
- SPI interface connector for RF2401 Wireless module
- Digital IO and Analog brought to connectors
- Expansion connectors on 0.1" centers for proto board
- Real time data acquisition application communicating wirelessly with Pico sensors using RF24L01 module
- Optional MPU-9150 9DOF sensor
- Optional BMP180 barometric pressure sensor
- Source code and project file for CooCox IDE

The NanoM is a 10DOF sensor platform for prototype development and wireless base station use. NanoM comes with a real time wireless communications application that communicates with wireless Pico IMU sensors. Source code is provided. The application was developed using the CooCox IDE. The onboard bootloader allows new software to be uploaded without the need for specialized programming hardware.

RF24L01 Wireless Connector

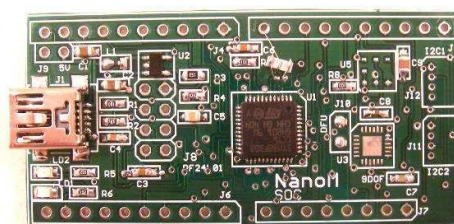
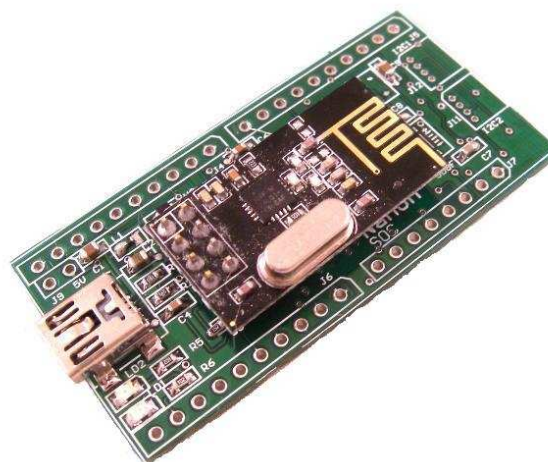
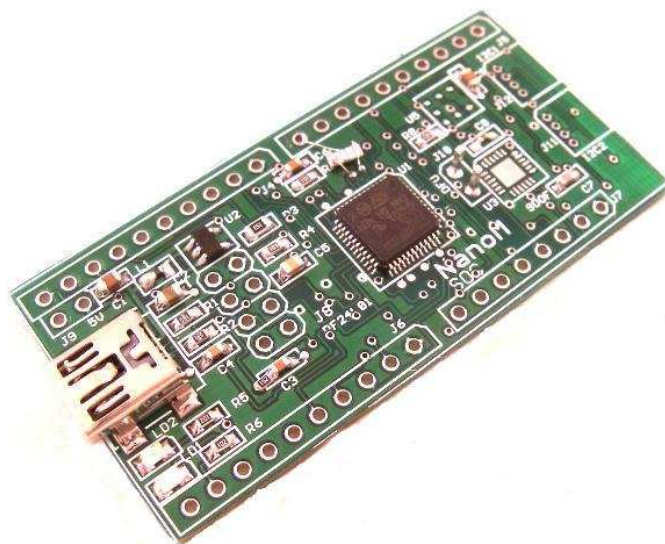
NanoM has a connector that allows direct connection of a low cost RF2401 wireless communication module allowing the NanoM to be a wireless base station for low cost wireless data acquisition modules.

MPU9150 9DOF Inertial Sensor

An optional 9 Degree of Freedom Inertial sensor can be mounted. The sensor measures acceleration, rotation and magnetic heading on three axis.

BMP180 Barometer Sensor

An optional barometer can be mounted. The



RF Modules



RF24L01

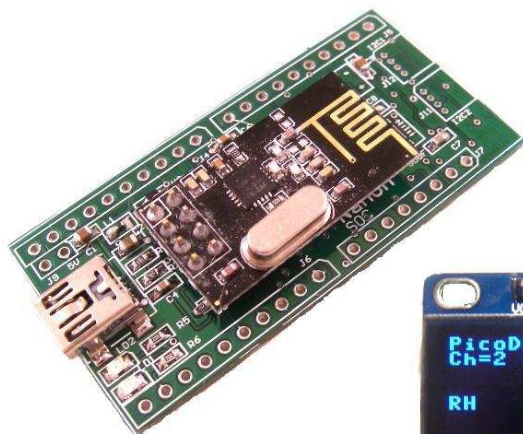
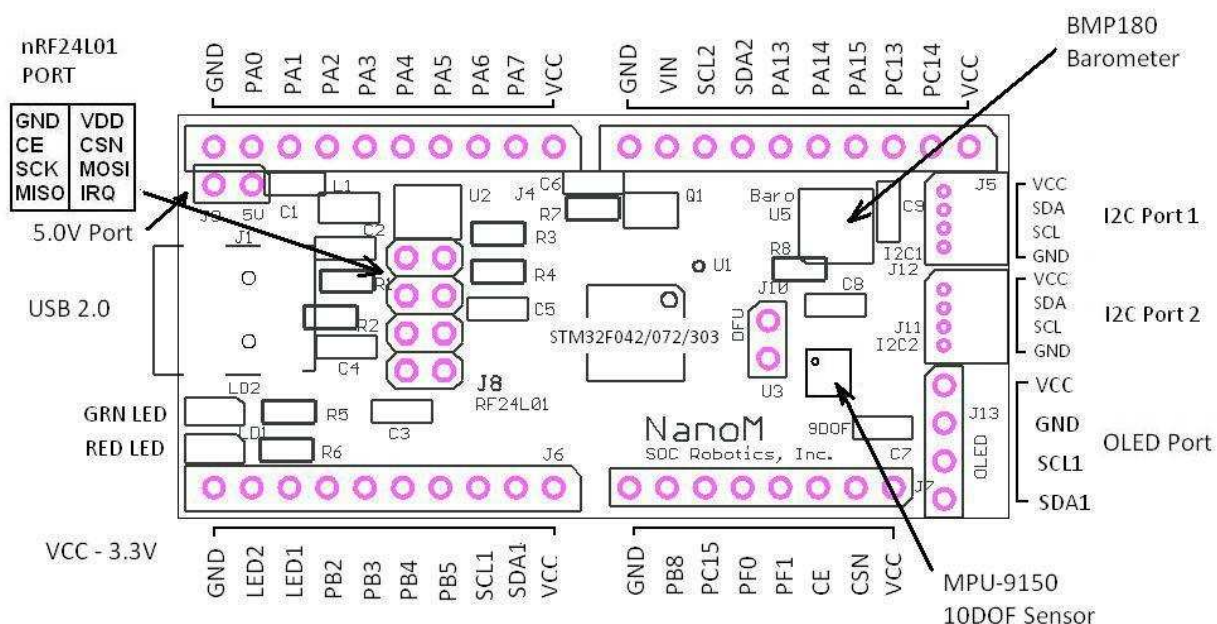


ESP8266 WiFi

NanoM Connector Pin Assignments

NanoM has several interface options. The STM32FXXX provides analog input, analog output, digital IO, SPI, USARTs and I2C interfaces. A dedicated connector allows direct connection of the popular RF24L01 wireless communication module. NanoM also supports the ESP8266 Serial WiFi module (with an adapter). An optional 9 DOF Inertial sensor (MPU-9150) and a barometer (BMP180) can be mounted on the board. Processor signal pins are brought out to expansion ports to allow prototype development and the attachment of other sensors. A dedicated connector allows direct connection of a popular low cost OLED 128x64 pixel display.

NanoM Connector Pin Assignment

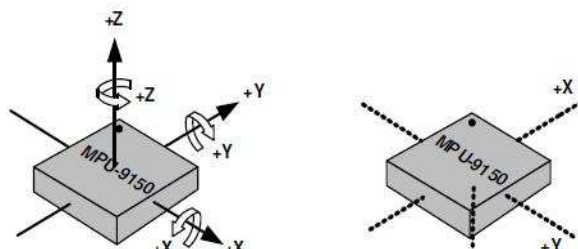


RF24L01 mounted on NanoM.



OLED 128x64 pixel display.

MPU-9150 Sensor Orientation



Orientation of the accelerometer, gyro and magnetometer on the NanoM. The small dot on the package above corresponds to the small circle in the picture above.