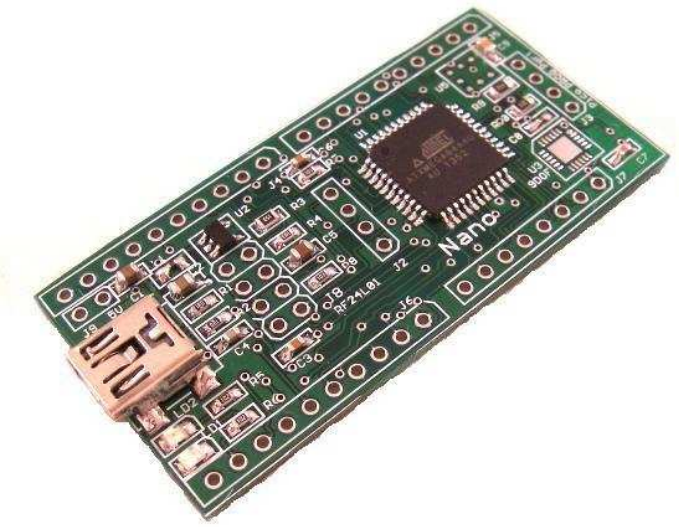
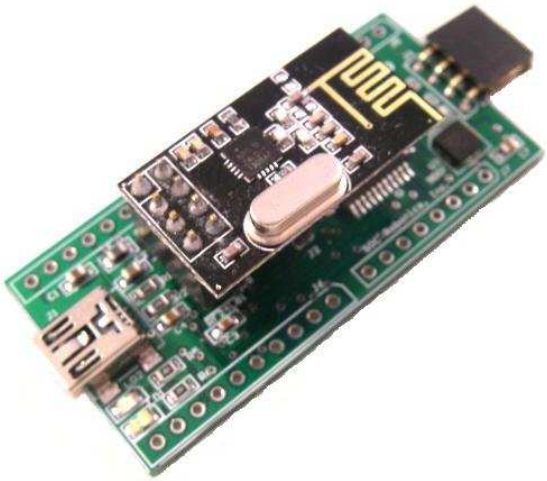
Overview

Nano is a 10DOF sensor platform with 3-axis accelerometer, 3-axis gyro, 3-axis magnetometer and barometric pressure sensor. Nano has a ATxmega128A4U processor running at 32MHz that brings high speed A/D, D/A and digital IO. Nano is available with or without sensors.

Features:

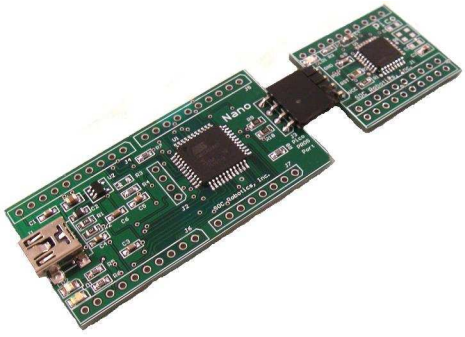
- Fast 32MHz 8bit ATxmega128A4U processor
- 12bit DAC running at 1Msps
- 12-16bit A/D running at 2Msps
- Five USARTS (one connected to PI)
- Two SPI interface to PI
- On chip DFU boot loader for software field upgrades
- SPI interface connector for RF2401 Wireless module
- Digital IO and Analog brought 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 AVR Studio 6.2





The Nano is a 10DOF sensor platform for prototype development and wireless base station use. Nano comes with a real time wireless communications application that communicates with wireless Pico IMU sensors.

Source code for the application is available for download. The application was developed using AVR Studio 6.2. The onboard bootloader allows new software to be uploaded without the need for specialized programming hardware.



RF24L01 Wireless Connector

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

MPU9150 9DOF Inertial Sensor

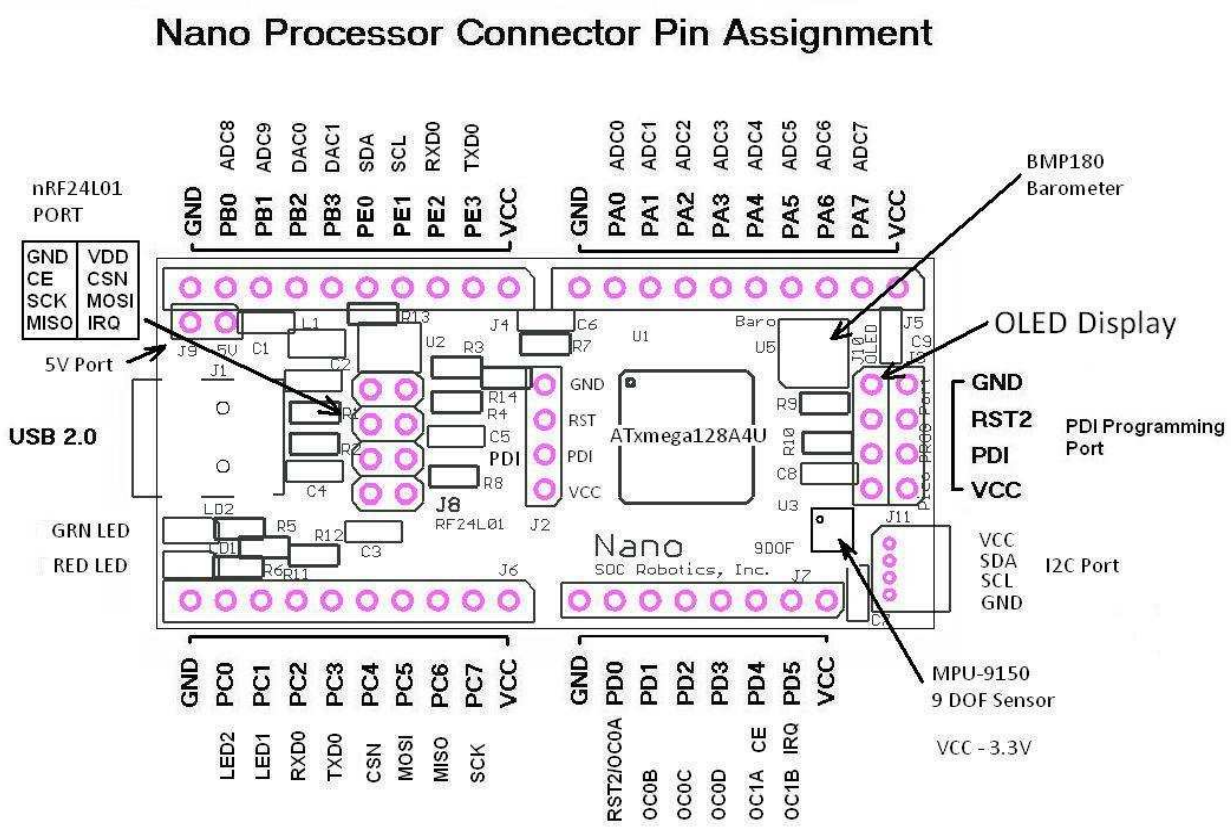
An optional 9 Degree of Freedom Inertial sensor can be mounted. The sensor measures acceleration, rotation and magnetic heading on three axis.

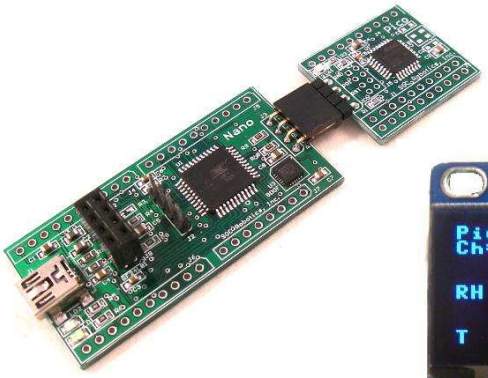
BMP180 Barometer Sensor

An optional barometer can be mounted. The barometer resolution is 75 cm.

Nano Connector Pin Assignments

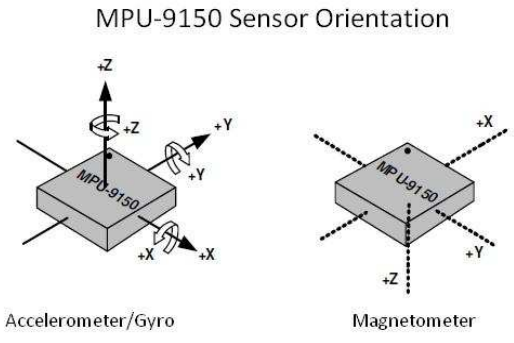
Nano has several interface options. The ATxmega128A4U provides analog input, analog output, digital IO, SPI, USARTs and I2C interfaces. A dedicated connector allows direct connection of the popular RF24L01 wireless communication module. Nano also supports the ESP8266 Serial WiFi module (with an adapter). An optional 9 DOF Inertial sensor (MPU-9150) and barometer 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. Nano can program Pico IMUs using the PDI programming port – programming software is included.





RF24L01 mounted on NanoM.

OLED 128x64 pixel display.



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.