Arduino Nano 33 BLE

Arduino's tiniest form factor with Bluetooth Low Energy and embedded inertial sensor.

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Overview

The Nano 33 BLE (without headers) is Arduino's 3.3V compatible board in the smallest available form factor: 45x18mm!

The Arduino Nano 33 BLE is a completely new board on a well-known form factor. It comes with an embedded 9 axis inertial sensor what makes this board ideal for wearable devices, but also for a large range of scientific experiments in the need of short-distance wireless communication.

The Arduino Nano 33 BLE is an evolution of the traditional Arduino Nano, but featuring a lot more powerful processor, the nRF52840 from Nordic Semiconductors, a 32-bit ARM® Cortex™-M4 CPU running at 64 MHz. This will allow you to make larger programs than with the Arduino Uno (it has 1MB of program memory, 32 times bigger), and with a lot more variables (the RAM is 128 times bigger). The main processor includes other amazing features like Bluetooth® pairing via NFC and ultra low power consumption modes.

The Nano 33 BLE comes with a 9 axis inertial measurement unit (IMU) which means that it includes an accelerometer, a gyroscope, and a magnetometer with 3-axis resolution each. This makes the Nano 33 BLE the perfect choice for more advanced robotics experiments, exercise trackers, digital compasses, etc.

An Improved Arduino Nano

If you used Arduino Nano in your projects in the past, the Nano 33 BLE is a pin-equivalent substitute. Your code will still work, but remember, it operates at 3.3V. This means that you need to revise your original design in case it is not 3.3V compatible. Besides that, the main differences to the classic Nano are: a better processor, a micro-USB connector, and a 9 axis IMU.

You can get the board with or without headers, what will allow you embedding the Nano inside any kind of inventions, including wearables. The board comes with tessellated connectors and no components on the B-side. These features allow you to solder the board directly onto your own design, minimizing the height of your whole prototype.

Oh, and did we mention the improved price? Thanks to a revised manufacturing process, the Arduino Nano 33 BLE costs less than the original Nano ... what are you waiting for? Upgrade now!

Bluetooth® and BLE

The communications chipset on the Nano 33 BLE can be both a BLE and Bluetooth® client and host device. Something pretty unique in the world of microcontroller platforms. If you want to see how easy it is to create a Bluetooth® central or a peripheral device, explore the examples at our ArduinoBLE library.

Getting Started

The Getting Started section contains all the information you need to configure your board, use the Arduino Software (IDE), and start tinkering with coding and electronics.

Need Help?

Check the Arduino Forum for questions about the Arduino Language, or how to make your own Projects with Arduino. Need any help with your board please get in touch with the official Arduino User Support as explained in our Contact Us page.

Warranty

You can find here your board warranty information.

Tech Specs

The Arduino Nano 33 BLE is based on the nRF52840 microcontroller.

Microcontroller | nRF52840 [datasheet]
Operating Voltage | 3.3V
Input Voltage (limit) | 21V
DC Current per I/O Pin | 15 mA
Clock Speed | 64MHz
CPU Flash Memory | 1MB (nRF52840)
SRAM | 256KB (nRF52840)
EEPROM | none
Digital Input / Output Pins | 14
PWM Pins | all digital pins
UART | 1
SPI | 1
I2C | 1
Analog Input Pins | 8 (ADC 12 bit 200 ksamples)
Analog Output Pins | Only through PWM (no DAC)
External Interrupts | all digital pins
LED_BUILT_IN | 13
USB | Native in the nRF52840 Processor
Length | 45 mm
Width | 18 mm
Weight | 5 gr (with headers)

Documentation

OSH: Schematics
The Arduino Nano 33 BLE is open-source hardware! You can build your own board using the following files:

- EAGLE FILES IN ZIP
- SCHEMATICS IN PDF

**Pinout Diagram**

Download the full pinout diagram as PDF [here](https://store.arduino.cc/usa/datasheet/index/index/url_key/nano-33-ble-reseller/).