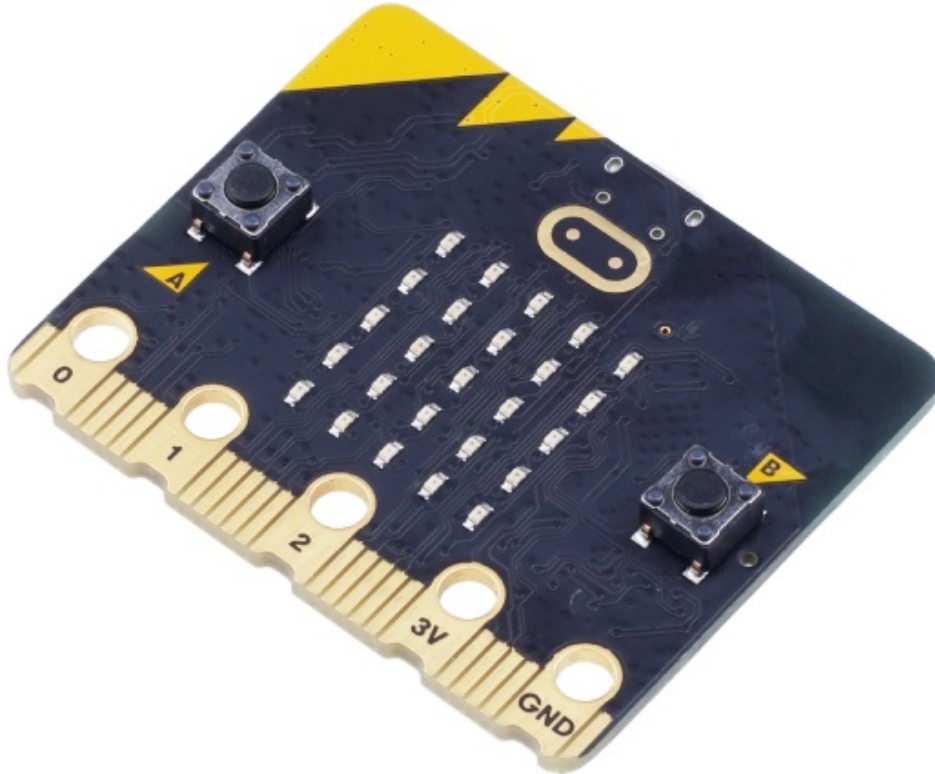


micro:bit v2 - with speaker, microphone, accelerometer, 2.4GHz radio/ BLE 5.0



PRODUCT DETAILS

Features

- Pocket-sized microcontroller (4 x 5cm) designed for kids and beginners
- Wireless connectivity with built-in 2.4GHz micro:bit radio and BLE Bluetooth 5.0
- 25 red LEDs that can be used for interactions
- Onboard MEMS microphone, speaker, and touch-sensitive logo
- Onboard accelerometer for motion sensing applications
- Notched edge connector for easier connections
- Dedicated I2C bus for peripherals
- Two programmable buttons

Description

micro:bit v2 is a pocket-sized microcontroller designed for kids and beginners learning how to program, letting them easily bring ideas into DIY digital games, interactive projects, and robotics. You can use your BBC micro:bit for all sorts of cool creations,

from robots to musical instruments. The possibilities are endless.

You can code, customize, and control micro:bit to bring your digital ideas, games, and apps to life. Measuring 4cm by 5cm, and designed to be fun and easy to use, users can create anything using micro:bit, from games and animations to scrolling stories at school, at home, and on the go. All you need is imagination and creativity.

micro:bit v2 has a lot of features and is completely programmable. Each of its LEDs can be individually programmed. It is also equipped with a MEMS microphone, speaker, and touch-sensitive logo. If you want to realize wireless projects, it is equipped with a 2.4GHz micro:bit radio and BLE Bluetooth 5.0. Also, It has 25 red LEDs that can flash messages and two programmable buttons that can be used to control games or pause and skip songs on a playlist. micro:bit v2 can also detect motion and tell you in which direction you're heading in with the help of the onboard accelerometer.

Specifications

Specification	Details
Processor	Nordic Semiconductor nRF52833
Memory	512KB Flash, 128KB RAM
Interface	NXP KL27Z, 32KB RAM
Microphone	MEMS microphone and LED indicator
Speaker	On-board speaker
Logo touch	Touch-sensitive logo
Edge Connector	25 pins. 4 dedicated GPIO, PWM, I2C, SPI and ext.power. 3 ring pins for connecting crocodile clips/banana plugs. Notched for easier connection
I2C	Dedicated I2C bus for peripherals
Wireless	2.4GHz micro:bit Radio/BLE Bluetooth 5.0
Power	5V via micro-USB port, 3V via edge connector or battery pack, LED power indicator, Power off (push and hold the power button)
Current available	200mA available for accessories
Motion Sensor	ST LSM 303
Software	C++, MakeCode, Python, Scratch
Size	5cm(w) x 4cm(h)

Comparison between the current version (v1.5) and the latest version (v2.0)

	Current Version (v1.5)	Latest Version(v2)
Processor	Nordic Semiconductor nRF51822	Nordic Semiconductor nRF52833
Memory	256KB Flash, 16KB RAM	512KB Flash, 128KB RAM
Interface	NXP KL26Z, 16KB RAM	NXP KL27Z, 32KB RAM
Microphone	N/A	MEMS microphone and LED indicator
Speaker	N/A	On-board speaker
Logo touch	N/A	Touch-sensitive logo
Edge Connector	25 pins. 3 dedicated GPIO, PWM, I2C, SPI and ext.power. 3 ring pins for connecting crocodile clips/banana plugs	25 pins. 4 dedicated GPIO, PWM, I2C, SPI and ext.power. 3 ring pins for connecting crocodile clips/banana plugs. Notched for easier connection
I2C	Shared I2C bus	Dedicated I2C bus for peripherals
Wireless	2.4GHz micro:bit Radio/BLE Bluetooth 4.0	2.4GHz micro:bit Radio/BLE Bluetooth 5.0
Power	5V via micro-USB port, 3V via edge connector or battery pack	5V via micro-USB port, 3V via edge connector or battery pack, LED power indicator, Power off (push and hold power button)
Current available	90mA available for accessories	200mA available for accessories
Motion Sensor	ST LSM 303	ST LSM 303
Software	C++, MakeCode, Python, Scratch	C++, MakeCode, Python, Scratch
Size	5cm(w) x 4cm(h)	5cm(w) x 4cm(h)

Board Changes

Speaker: Addition of a speaker at the back of the board, but you need to carefully check when accessories are mounted closer to the board than the depth of the current JST connector. By default, the micro:bit will output sound to both the edge connector pins and the onboard speaker. If your accessory makes use of a speaker, you may wish to disable the onboard speaker. This will need to be done in software.

Microphone: Addition of a rear-mounted MEMS microphone with a sound input hole on the front of the board, with a microphone activity LED. Make sure not to cover the microphone and the microphone LED when mounting on accessories.

Touch-sensitive logo: Addition of capacitive touch support to the micro:bit logo which is made of gold plated copper. Capacitive touch is used for the large pins on the micro:bit v2 as opposed to the resistive touch present in the micro:bit v1.5.

Antenna: Change of position of the antenna with an angle and coating it with copper to make it more visible. If your accessory makes use of radio or Bluetooth, it's better to test your software packages with both board revisions.

Hardware Changes

I2C Bus: Addition of dedicated external I2C lines from the nRF52 of micro:bit v2 to use with accessories as opposed to the shared I2C bus on the micro:bit v1.5

Power: micro:bit v2 can be powered from the two lozenge-shaped pads on the rear of the board and the 3V/GND pins. The nRF52 supplies 300mA to drive the board. 100mA is reserved for powering onboard components. 200mA is then available for accessories.

Software Changes

MakeCode extensions: If your MakeCode extension makes use of mBed or the DAL, you may need to revise them to be compatible with CODAL and both revisions of the board. The latest revision no longer makes use of mBED.

Python modules: Additional memory helps to have more space to create Python modules to work with your accessories and the micro:bit.

Part List

- 1 x micro:bit v2
- 1 x User guide

ECCN/HTS

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