

Home > Arduino Uno Rev3




## Overview

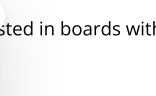
**Arduino Uno** is a microcontroller board based on the ATmega328P ([datasheet](#)). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator (CSTCE16M0V53-R0), a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.. You can tinker with your Uno without worrying too much about doing something wrong, worst case scenario you can replace the chip for a few dollars and start over again.

"Uno" means one in Italian and was chosen to mark the release of Arduino Software (IDE) 1.0. The Uno board and version 1.0 of Arduino Software (IDE) were the reference versions of Arduino, now evolved to newer releases. The Uno board is the first in a series of USB Arduino boards, and the reference model for the Arduino platform; for an extensive list of current, past or outdated boards see the [Arduino index of boards](#).


## Related Boards



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rated



**Rev3 SMD**  
**WiFi Rev2**



with [Arduino Uno](#) page contains all the information you need to configure your board, use the [Arduino Software \(IDE\)](#), and start

## Arduino Uno Rev3

★★★★★ (96)  
SKU A000066 - Barcode 7630049200050 - [Show more](#)

\$27.60

Quantity

−

1

+

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The **Arduino UNO** is the best board to get started with electronics and coding. If this is your first experience tinkering with the platform, the UNO is the most robust board you can start playing with. The UNO is the most used and documented board of the whole Arduino family.

Enhance your experience, add to your cart:		\$0.00
<input type="checkbox"/>	<a href="#">Gravity: 27 Pcs Sensor Set for Arduino</a>	\$82.00
<input type="checkbox"/>	<a href="#">Tinkerkit Braccio robot</a>	\$275.00
<input type="checkbox"/>	<a href="#">USB 2.0 Cable Type A/B</a>	\$8.00

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sketches as well other useful information to expand your knowledge of the Arduino hardware and software.

Find inspiration for your Uno projects from our tutorial platform [Project Hub](#).

### 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

Microcontroller	<a href="#">ATmega328P</a>
Operating Voltage	5V
Input Voltage (recommended)	7-12V
Input Voltage (limit)	6-20V
Digital I/O Pins	14 (of which 6 provide PWM output)
PWM Digital I/O Pins	6
Analog Input Pins	6
DC Current per I/O Pin	20 mA
DC Current for 3.3V Pin	50 mA
Flash Memory	32 KB (ATmega328P) of which 0.5 KB used by bootloader
SRAM	2 KB (ATmega328P)
EEPROM	1 KB (ATmega328P)
Clock Speed	16 MHz
LED_BUILTIN	13
Length	68.6 mm
	53.4 mm
	25 g



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### Conformities

The following Declarations of Conformities have been granted for this board:

For any further information about our certifications please visit [docs.arduino.cc/certifications](https://docs.arduino.cc/certifications)

# Documentation

## OSH: Schematics

Arduino Uno is open-source hardware! You can build your own board using the following files:

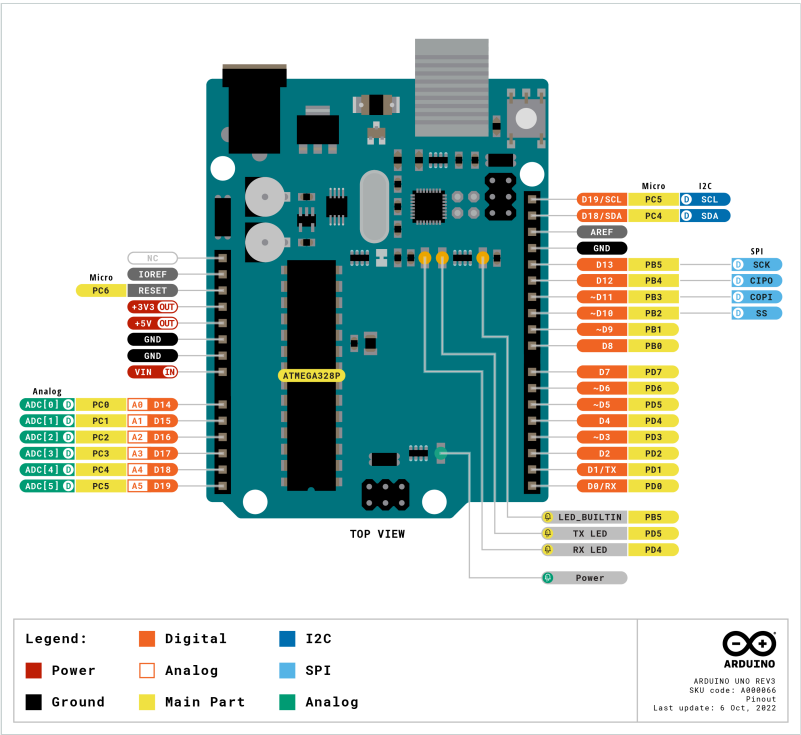
EAGLE FILES IN .ZIP

SCHEMATICS IN .PDF

BOARD SIZE IN .DXF

DATASHEET IN .PDF

## Pinout Diagram



Download the full pinout diagram as PDF [here](#).



### Board Viewer

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ARDUINO DOCS

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Get Inspired

## FAQs

### Programming

The Arduino Uno can be programmed with the ([Arduino Software \(IDE\)](#)). Select "Arduino Uno" from the Tools > Board menu (according to the microcontroller on your board). For details, see the [reference](#) and [tutorials](#).

The ATmega328 on the Arduino Uno comes preprogrammed with a [bootloader](#) that allows you to upload new code to it without the use of an external hardware programmer. It communicates using the original STK500 protocol ([reference](#), [C header files](#)).

You can also bypass the bootloader and program the microcontroller through the ICSP (In-Circuit Serial Programming) header using [Arduino ISP](#) or similar; see [these instructions](#) for details.

The ATmega16U2 (or 8U2 in the rev1 and rev2 boards) firmware source code is available in the Arduino repository. The ATmega16U2/8U2 is loaded with a DFU bootloader, which can be activated by:

- On Rev1 boards: connecting the solder jumper on the back of the board (map of Italy) and then resetting the 8U2.
- On later boards: there is a resistor that pulling the 8U2/16U2 to ground, making it easier to put into DFU mode.

Use [Atmel's FLIP software](#) (Windows) or the [DFU loader](#) (Mac OS X and Linux) to load a new firmware. Or you can use the [ArduinoISP](#) external programmer (overwriting the DFU bootloader). See [this contributed tutorial](#) for more information.



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The Arduino Uno has a resettable polyfuse that protects your computer's USB

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than 500 mA is applied to the USB port, the fuse will automatically break the connection until the short or overload is removed.

### Differences with other boards

The Uno differs from all preceding boards in that it does not use the FTDI USB-to-serial driver chip. Instead, it features the Atmega16U2 (Atmega8U2 up to version R2) programmed as a USB-to-serial converter.

### Power

The Arduino Uno board can be powered via the USB connection or with an external power supply. The power source is selected automatically.

External (non-USB) power can come either from an AC-to-DC adapter (wall-wart) or battery. The adapter can be connected by plugging a 2.1mm center-positive plug into the board's power jack. Leads from a battery can be inserted in the GND and Vin pin headers of the POWER connector.

The board can operate on an external supply from 6 to 20 volts. If supplied with less than 7V, however, the 5V pin may supply less than five volts and the board may become unstable. If using more than 12V, the voltage regulator may overheat and damage the board. The recommended range is 7 to 12 volts.

The power pins are as follows:

- Vin. The input voltage to the Arduino board when it's using an external power source (as opposed to 5 volts from the USB connection or other regulated power source). You can supply voltage through this pin, or, if supplying voltage via the power jack, access it through this pin.
- 5V. This pin outputs a regulated 5V from the regulator on the board. The board can be supplied with power either from the DC power jack (7 - 12V), the USB connector (5V), or the VIN pin of the board (7-12V). Supplying voltage via the 5V or 3.3V pins bypasses the regulator, and can damage your board. We don't advise it.
- 3V3. A 3.3 volt supply generated by the on-board regulator. Maximum current draw is 50 mA.
- GND. Ground pins.
- IOREF. This pin on the Arduino board provides the voltage reference with which the microcontroller operates. A properly configured shield can read the IOREF pin voltage and select the appropriate power source or enable voltage translators on the outputs to work with the 5V or 3.3V.

### Memory

The ATmega328 has 32 KB (with 0.5 KB occupied by the bootloader). It also has 2 KB of SRAM and 1 KB of EEPROM (which can be read and written with the [EEPROM library](#)).

### Input and Output

See the mapping between Arduino pins and ATmega328P ports. The mapping for the Atmega8, 168, and 328 is identical.

PIN MAPPING ATmega328P



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igital pins on the Uno can be used as an input or output, `digitalWrite()`, and `digitalRead()` functions. They operate at 5 an provide or receive 20 mA as recommended operating as an internal pull-up resistor (disconnected by default) of 20- imum of 40mA is the value that must not be exceeded on any permanent damage to the microcontroller.

ie pins have specialized functions:

(RX) and 1 (TX). Used to receive (RX) and transmit (TX) TTL serial se pins are connected to the corresponding pins of the J2 USB-to-TTL Serial chip.

- External Interrupts: 2 and 3. These pins can be configured to trigger an

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- PWM: 3, 5, 6, 9, 10, and 11. Provide 8-bit PWM output with the `analogWrite()` function.
- SPI: 10 (SS), 11 (MOSI), 12 (MISO), 13 (SCK). These pins support SPI communication using the SPI library.
- LED: 13. There is a built-in LED driven by digital pin 13. When the pin is HIGH value, the LED is on, when the pin is LOW, it's off.
- TWI: A4 or SDA pin and A5 or SCL pin. Support TWI communication using the Wire library.

The Uno has 6 analog inputs, labeled A0 through A5, each of which provide 10 bits of resolution (i.e. 1024 different values). By default they measure from ground to 5 volts, though is it possible to change the upper end of their range using the AREF pin and the `analogReference()` function. There are a couple of other pins on the board:

- AREF. Reference voltage for the analog inputs. Used with `analogReference()`.
- Reset. Bring this line LOW to reset the microcontroller. Typically used to add a reset button to shields which block the one on the board.

Communication

The Arduino Uno has a number of facilities for communicating with a computer, another Arduino board, or other microcontrollers. The ATmega328 provides UART TTL (5V) serial communication, which is available on digital pins 0 (RX) and 1 (TX). An ATmega16U2 on the board channels this serial communication over USB and appears as a virtual com port to software on the computer. The 16U2 firmware uses the standard USB COM drivers, and no external driver is needed. However, [on Windows, a .inf file is required](#). The Arduino Software (IDE) includes a serial monitor which allows simple textual data to be sent to and from the board. The RX and TX LEDs on the board will flash when data is being transmitted via the USB-to-serial chip and USB connection to the computer (but not for serial communication on pins 0 and 1).

A [SoftwareSerial library](#) allows serial communication on any of the Uno's digital pins.

The ATmega328 also supports I2C (TWI) and SPI communication. The Arduino Software (IDE) includes a Wire library to simplify use of the I2C bus; see the [documentation](#) for details. For SPI communication, use the [SPI library](#).

Automatic (Software) Reset

Rather than requiring a physical press of the reset button before an upload, the Arduino Uno board is designed in a way that allows it to be reset by software running on a connected computer. One of the hardware flow control lines (DTR) of the ATmega8U2/16U2 is connected to the reset line of the ATmega328 via a 100 nanofarad capacitor. When this line is asserted (taken low), the reset line drops long enough to reset the chip. The Arduino Software (IDE) uses this capability to allow you to upload code by simply pressing the upload button in the interface toolbar. This means that the bootloader can have a shorter timeout, as the lowering of DTR can be well-coordinated with the start of the upload.

This setup has other implications. When the Uno is connected to either a computer running Mac OS X or Linux, it resets each time a connection is made to it from software (via USB). For the following half-second or so, the bootloader is running on the Uno. While it is programmed to ignore malformed data (i.e. anything besides an upload of new code), it will intercept

s of data sent to the board after a connection is opened. If a on the board receives one-time configuration or other data ts, make sure that the software with which it communicates after opening the connection and before sending this data.

contains a trace that can be cut to disable the auto-reset. The ide of the trace can be soldered together to re-enable it. It's EN". You may also be able to disable the auto-reset by 0 ohm resistor from 5V to the reset line; see [this forum](#) is.



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REVISIONS

Revision 3 of the board has the following new features:


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two other new pins placed near to the RESET pin, the 10KΩ that allow the shields to adapt to the voltage provided from the board. In future, shields will be compatible with both the board that uses the AVR, which operates with 5V and with the Arduino Due that operates with 3.3V. The second one is a not connected pin, that is reserved for future purposes.

- Stronger RESET circuit.
- Atmega 16U2 replace the 8U2.

Inspired by your shopping trends

<div>Arduino USB 2.0 CABLE TYPE A/B 1M</div> <div><div>\$6.50</div><div>4.6 ★</div><div></div></div>	<div>Arduino Uno Rev3 SMD</div> <div><div>\$26.30</div><div>5.0 ★</div><div></div></div>	<div>USB 2.0 Cable Type A/B</div> <div><div>\$8.00</div><div>4.9 ★</div><div></div></div>	<div>Arduino Micro without headers</div> <div><div>\$21.80</div><div>5.0 ★</div><div></div></div>
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Allen O.   
02/09/2025

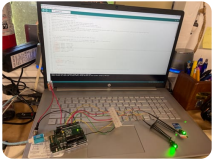



It arrived early and works great so far.

Ryan B.   
01/08/2025




Been playing around with the R3 for the past couple weeks, I love it!  
Onto my 3rd project now.



Pablo A.   
19/05/2025



Es mi primera compra y siento que es El mejor producto de programación

Erick K.   
17/05/2025




package was delivered quickly and without issue. plugging Arduino in turned and and Arduino connected easily and without hassle to computer via USB.

James S.   
03/05/2025




Arduino makes building gizmos easy.

Ryu O.   
21/02/2025




Great board so far!

Kevin R.   
20/02/2025



Loved it, works well

Dale I.   
19/02/2025



Great product, at a great price!

Paul S.   
02/02/2025



...programming was seamless. Extremely user friendly.



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...board is checked after assembly to ensure proper functionality, worked right off the bat, thank you.

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07/10/2024



★★★★★

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Kolya R. ✓

11/07/2024

★★★★★

Fast shipping, arrived safe and sound.

Richard A. ✓

09/07/2024

★★★★★

My Uno arrived on time and in great shape. It is now measuring voltage and current as part of my project!

Mark B. ✓

03/07/2024

★★★★★

Tremendous fun and learning!

Madelyn S. ✓

20/06/2024

★★★★★

My first microcontroller, a bit difficult to get the hang of it but it's great!

Anthony W. ✓

27/02/2024

★★★★★

Product arrived in good and operable condition. The IDE is also working too. I'm enjoying working on my project with this device and look forward to getting more devices from you all.

Clark F. ✓

16/02/2024

★★★★★

great product, love it

Shipping Policy

Payment Methods

Sales Conditions

Distributors

Heather M. ✓

02/02/2024

★★★★★

Works great!

© 2025 Arduino S.r.l. - Partita IVA

Matthew S. ✓

31/12/2023

★★★★★

Awesome shopping and shipping experience. Quick shipping and no problems. I plan on buying all of my boards from Arduino!

Aiden W. ✓

02/12/2023

★★★★★



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