

# Arduino Pro Micro

From Deskthority wiki

The **Pro Micro** is an Arduino-compatible microcontroller board developed under an open hardware license by Sparkfun. Clones of the Pro Micro are often used as a lower-cost alternative to a Teensy 2.0 as a basis for a DIY keyboard controller/converter when a lower number of pins would suffice.

Like the Teensy 2.0, it sports an AVR ATmega32u4 8-bit microcontroller which has an integrated USB controller. It has a micro-USB type B port (Teensy 2.0: mini-USB), 18 I/O pins (Teensy 2.0: 25 I/O pins) and an integrated voltage regulator for 3V operation.

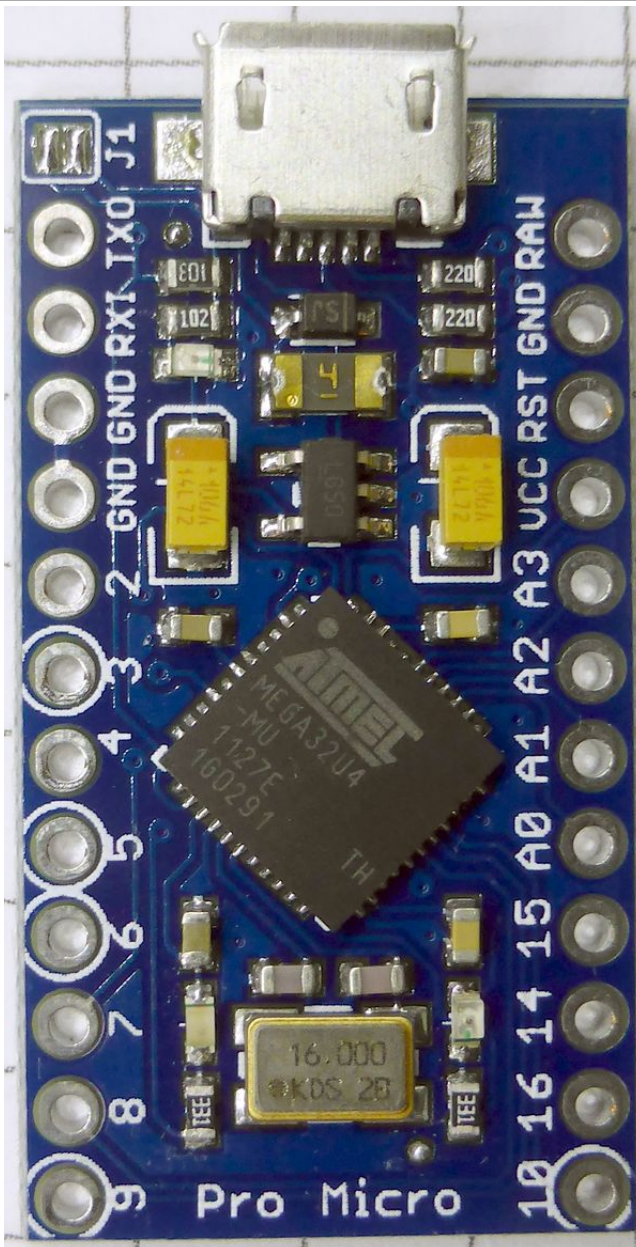
The Pro Micro is sold in a 3.3 V version (8 MHz) and a 5 V version (16 MHz).

On the 3.3 V version, shorting a solder bridge (J1) on the chip bypasses the 3.3 V voltage regulator on the board. This would allow 5 V operation and running at 16 MHz clock. At 3.3 V, the ATmega32u4 is otherwise limited to 8 MHz clock.

The ProMicro has three LEDs:

Colour	Function
red	power on
yellow	USB receiving data
green	USB sending data

## Pinout

Arduino			AVR		AVR		Arduino	
			↑					
			USB port					
								
TX	D1	PD3			RAW (+5V from USB)			
RX	D0	PD2			GND			
		GND			Reset			
		GND			Vcc (+3V*)			
SDA	D2	PD1			PF4	D21	A3	
SCL	D3	PD0			PF5	D20	A2	
A6	D4	PD4			PF6	D19	A1	
	D5	PC6			PF7	D18	A0	
A7	D6	PD7			PB1	D5	SCLK	
	D7	PE6			PB3	D14	MISO	
A8	D8	PB4			PB2	D16	MOSI	
A9	D9	PB5			PB6	D10	A10	

The pinout is nearly identical to the *Arduino Pro Mini* which has pin 3 as an additional Reset line instead of Ground.

## Programming

Uploading native software to run on the Pro Micro works different than for the Teensy 2.0. There is no reset button on the board, instead two pins have to be shortcut twice to bring the device in bootloader mode for 8 seconds. While the Teensy comes with an graphical uploader tool, the Micro Pro is programmed using a command line tool called avrdude. Sparkfun's and scottc's tutorials explain this further (see links).

## See also

- Deskthority forum tutorial: How to use a Pro Micro as a cheap controller/converter (<https://deskthority.net/workshop-f7/how-to-use-a-pro-micro-as-a-cheap-controller-converter-like->

soarer-s-t8448.html) by scottc

- SparkFun's ProMicro Product Page (<https://www.sparkfun.com/products/12587>), with links to schematic, EAGLE files, datasheets, drivers and an application tutorial
- Teensy

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