

ZZ8721 ATtiny85 with Arduino IDE

To use the Boards Manager, you will need to have Arduino IDE 1.6.4 or later installed. As the ATtiny85 does not have a USB function, you will need an ISP programmer such as [XC4627](#) or another Arduino main board programmed with the Arduino as ISP sketch.

Setup:

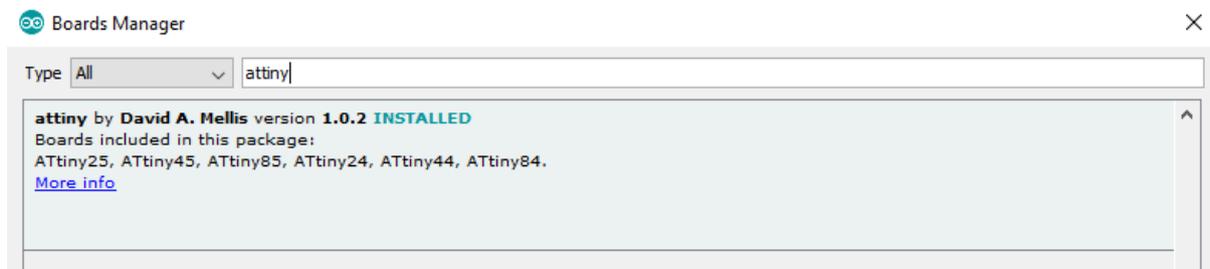
To download the ATtiny85 Boards profile, go into File>Preferences and add the following URL to the Additional Boards Manager URLs:

https://raw.githubusercontent.com/damellis/attiny/ide-1.6.x-boards-manager/package_damellis_attiny_index.json

You can separate this from the existing entries with a comma.

Click OK, then click Tools>Board>Boards Manager...

Search for 'attiny'- you should see the following result:

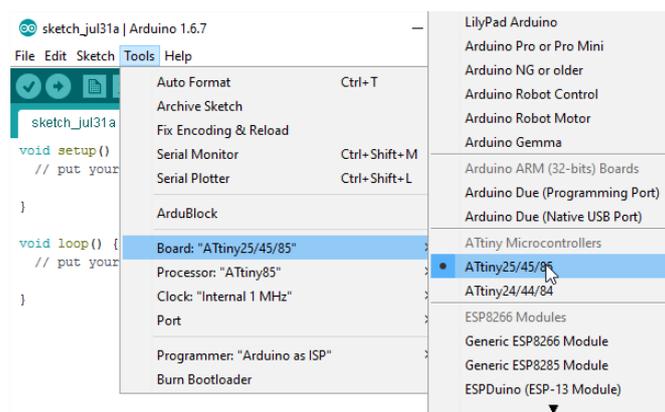


Click on it, then click install.

If you need to manually install it, see <https://github.com/damellis/attiny>.

Settings:

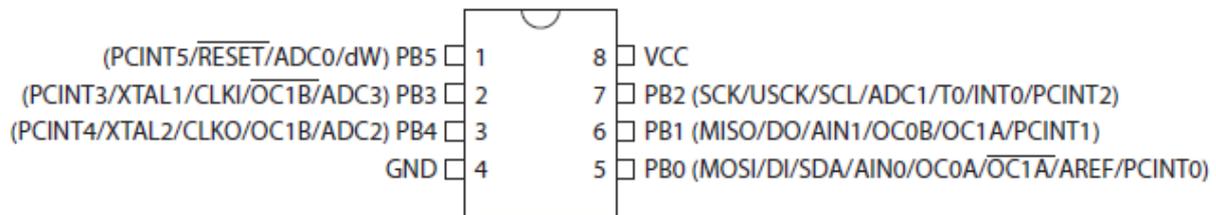
As for other board profiles, you will need to select the board:



Also ensure to set the Processor to ATtiny85. By default, the internal clock is set to 1MHz. This can be changed by selecting a different clock (note that external clock modes will need a crystal or similar, and will also cause the two crystal pins to be unavailable as IO pins), then selecting 'Burn Bootloader'. There is no bootloader as such, but the internal fuses will be set to accommodate the new clock setting. Always make sure the clock setting matches the current chip fuse clock settings- 8MHz internal is recommended.

Connections:

The following connections are used:



ATtiny85	ISP	Uno as ISP
1 (reset)	RST	D10
4 (GND)	GND	GND
5 (MOSI)	MOSI	D11
6 (MISO)	MISO	D12
7 (SCK)	SCK	D13
8 (VCC)	5V	5V

Other Preparation:

If you are using an ISP, you can ignore the below, but set the Programmer type to suit your programmer (eg USBasp for XC4627).

If using the Arduino as ISP, upload the sketch to the Programmer Board (File>Examples>11.ArduinoISP>ArduinoISP), then attach a 10uF or greater capacitor between RST and GND on the Programmer board (this keeps the reset from activating so it can't be accidentally programmed), then select Arduino as ISP as programmer type from Tools>Programmer menu.

ATtiny85 and Arduino Pin Numbering:

The pin numbering is not obvious, and you should refer to the below table. For example, if you want to test your ATtiny85 on a breadboard, you could connect an LED between pin 3 and pin 4, and then use the 'blink' sketch, but change the '13' to '4', as pin 3 corresponds to digital pin 4. This is a good way to experiment, as components connected to the programming pins may cause issues with programming.

ATtiny Pin Number	Arduino Digital Pin	Arduino Analog Pin
1 (RESET)		
2	D3	A3
3	D4	A2
4 (GND)		
5 (MOSI)	D0 (PWM capable)	
6 (MISO)	D1 (PWM capable)	
7 (SCK)	D2	A1
8 (5V)		

Usage and Limitations:

It should also be noted that the ATtiny85 does not have a hardware serial port, although the SoftwareSerial library may be used. SPI is supported, but generally, support for other libraries may or may not exist. The ATtiny85 also has much smaller RAM and Program Memory than other Arduinos.