# EDuino KIT A03 *2010*

Introduction

A full-featured Arduino is nice to use while developing projects, but when you make lots of projects it is a bit expensive to buy an Arduino board to be permanently installed in each one of them. Some other times, you would like to have a smaller Arduino. That's when EDuino comes to rescue!

IMPORTANT: You are the sole responsible for the assembly, so, be sure you feel you can assemble this KIT. We only provide you the components. If you don't have any prior experience assembling electronics circuits, ask for a experienced friend's help or practice soldering and de-soldering components in a piece of old PCB before attempting to assemble the KIT.

Connections

The kit includes a paper sticker with the drawing shown below, which you can glue on the "component" side of your board. Power can be fed through any of the two +5V and GND pins. If you feed power on one pair, you can get +5V on the other pair to feed some other device, as long as it consumes less than 50mA.
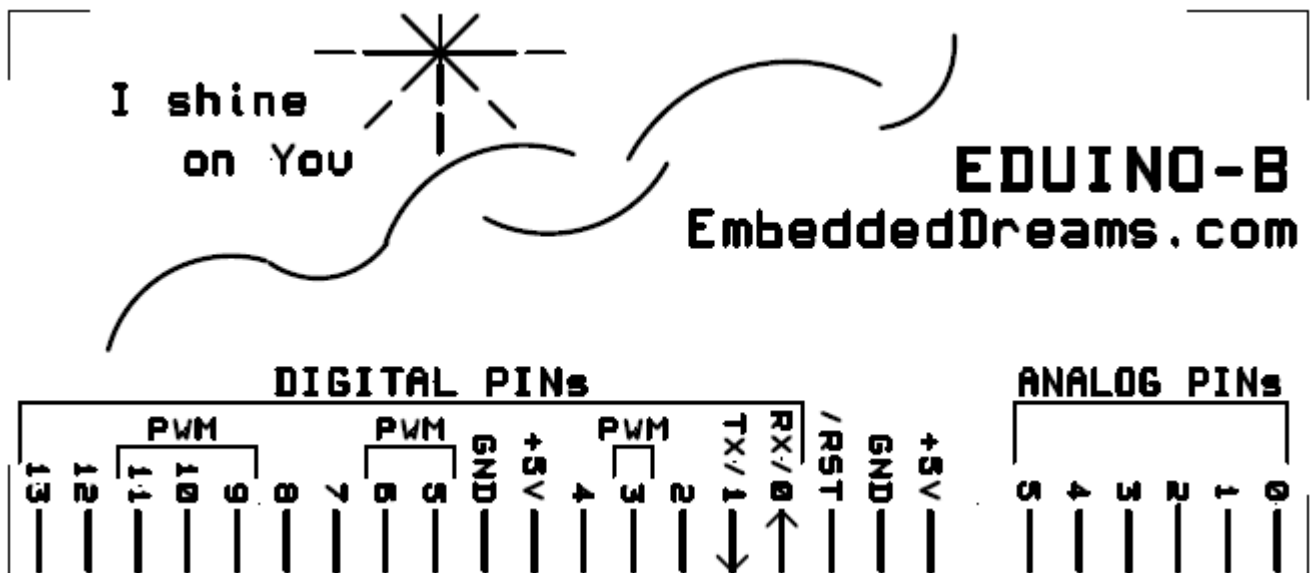
The remaining pins are the standard Arduino board pins.

Usage

Power it up and use it just like an Arduino. If male header pins are soldered on the I/O pads, EDuino can be plugged into a solderless breadboard.
You will need a USB/UART converter cable similar to http://ftdichip.com/'s FTDI cable in order to program sketchs on the board.
More information can be found in the article EDuino - our vision of serial Arduino at our website.

Parts included in the KIT

R1 – SMD1206 Resistor, 22K or 33K (marked 223 or 333)
R2 – SMD1206 Resistor, 1K (marked 102)
C1, C2 – SMD1206 Capacitor, 100nF (part not marked, but package is marked "100nF")
C3, C4 – SMD1206 Capacitor, 22pF (part not marked, but package is marked "22pF")

X1 – Crystal, low profile, 16.000 MHz
D1 – LED, yellow, round 3mm diameter
U1 – ATmega328, with Arduino bootloader, marked with white dot
US1 – 28 pin Integrated Circuit support, for U1
SW1 – Miniature push switch
PCB – Single side Printed Circuit Board, tinned, no soldermask
SK1 - Silkscreen sticker

Datasheet

Supply voltage: 5V
Protection against supply voltage polarity reversal: no

General Assembly Hints

Active components (transistors, diodes, integrated circuits) are more sensitive to heat than passive components (resistors, capacitors, variable resistors, terminals, jumpers) and therefore should be soldered last.
Use the following order when assembling the board:

1. Wires, jumpers, terminals and connectors
2. SMD resistors and capacitors
3. Integrated circuit supports
4. Through-hole resistors
5. Capacitors
6. Variable resistors and variable capacitors
7. Active components

Resistors, and capacitors without "+" nor "-" marks, have no special mounting orientation. They can be mounted in either both ways. The PCB (*Printed Circuit Board*, also known as "*the board*") drawings will help you set the correct orientation for polarized capacitors (by having a "+" or "-" mark), as well as for devices like transistors and integrated circuits.

Some Integrated Circuits are provided with sockets. Consider this socket a "connector" and solder it in step 1. of the list above. Fit the IC only in the end, after all other components are soldered in place. There is a mark on the side of the IC, like a small cut, and another on the socket; these 2 marks indicate the correct position for the IC in the socket, when they are near which other facing the same side.

Do **not** allow the soldering wire to stay in contact with a component or PCB for more than 5 or 6 seconds. If in one attempt you were not able to perform the soldering in this amount of time, stop and let the component and PCB cool down; and then try again. If you keep the soldering iron on the components for more than the recommended amount of time you will degrade or completely ruin the component and/or the PCB.

Cut the excess wire from the soldered components before putting the device into use.

Circuit Schematics
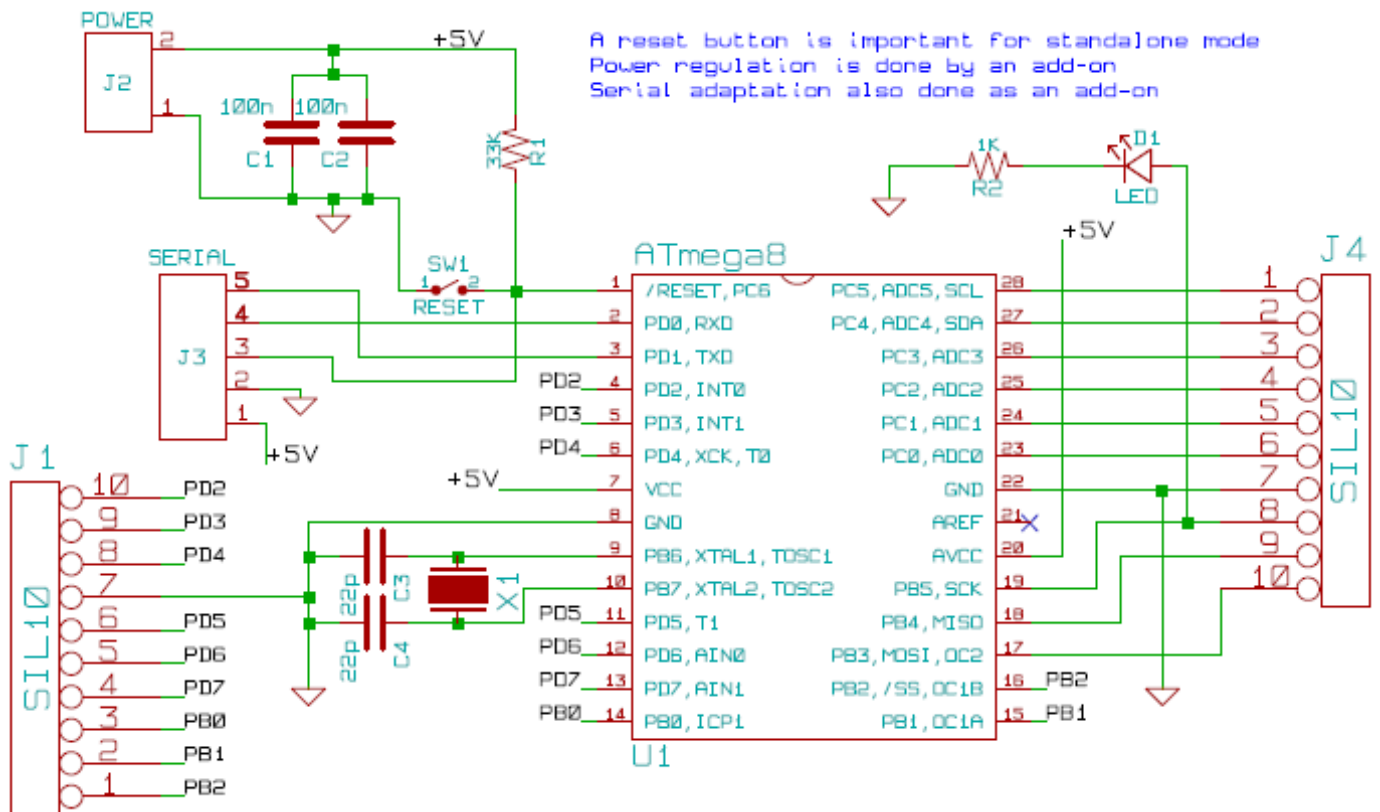
EDuino-B (breadboard)

EmbeddedDreams's view of a breadboard serial Arduino
http://EmbeddedDreams.com

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