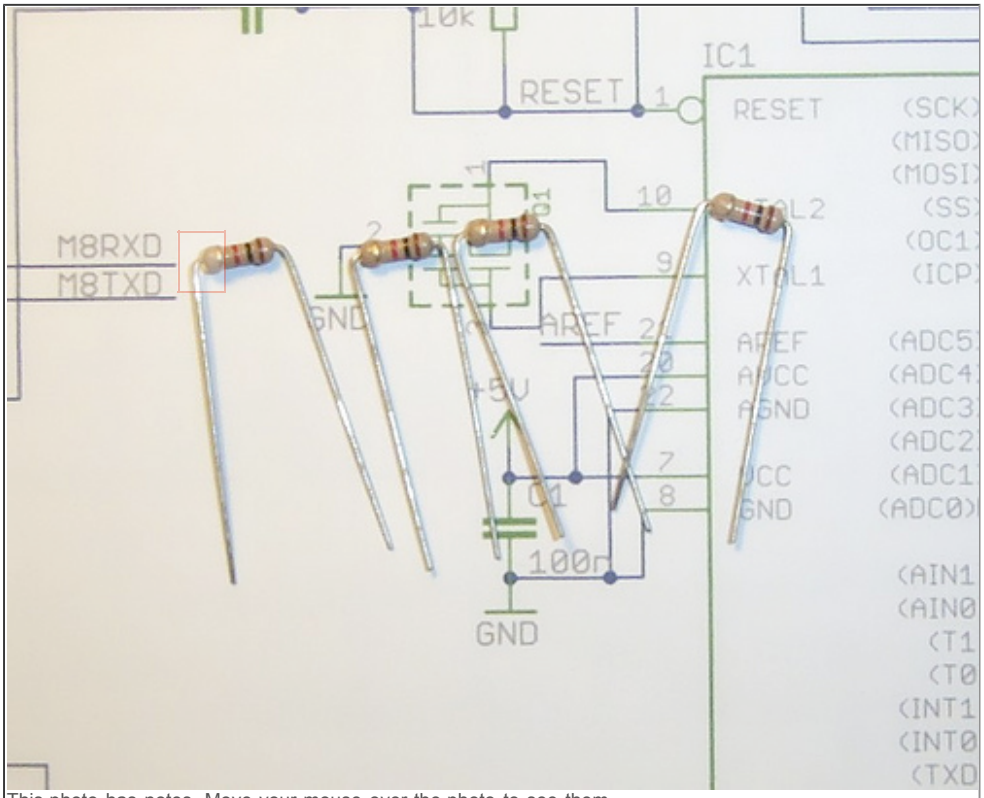
iDuino Assembly

Now that you have everything, lets assemble the iDuino.



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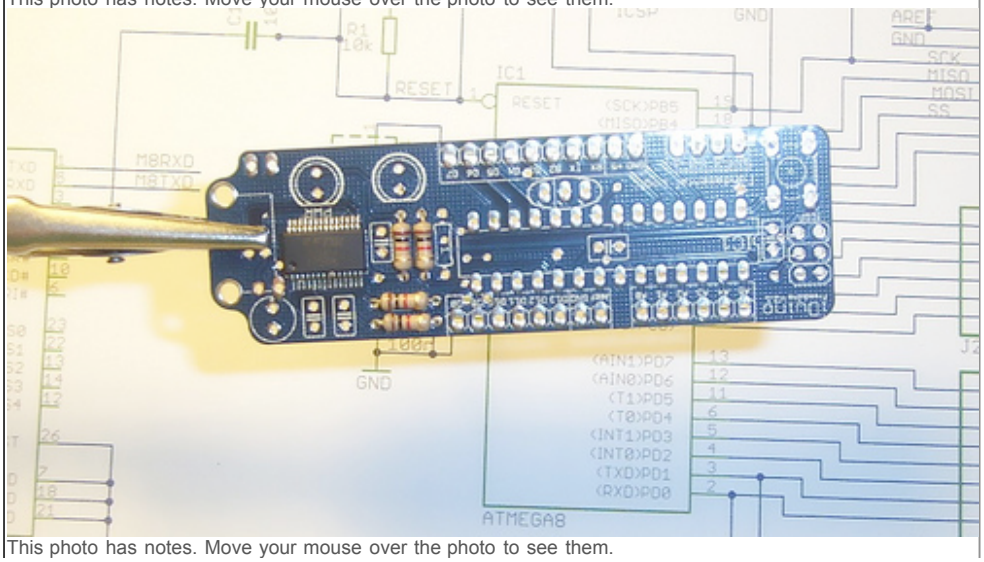

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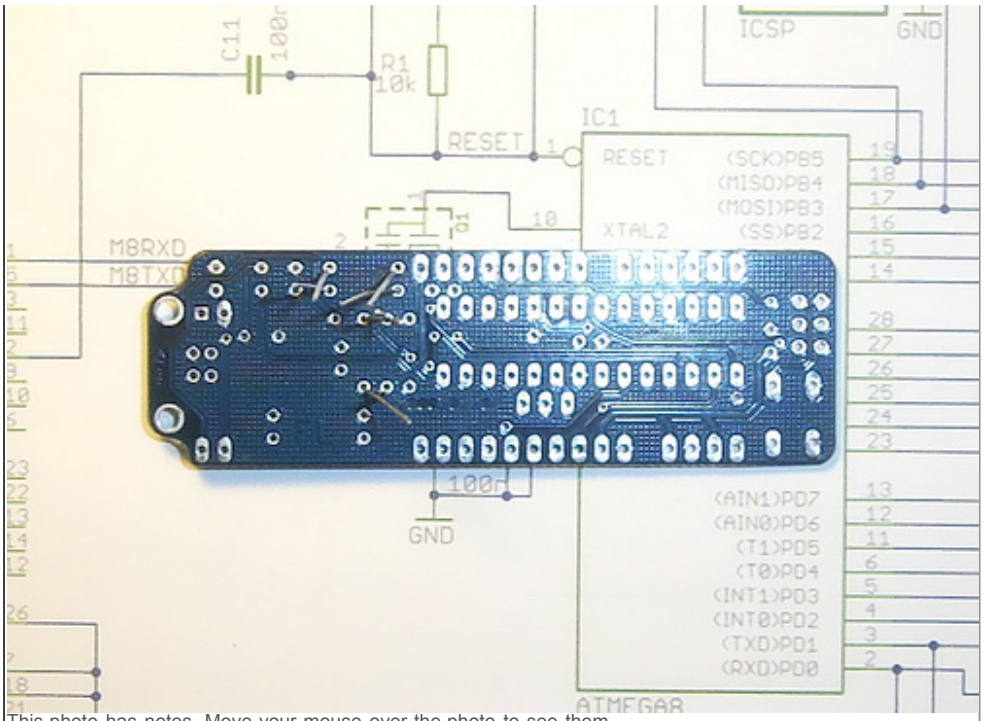
Install the 1KΩ resistors.

Using the four 1KΩ resistors, bend the legs close to the body of the resistor.

Place the resistors into the positions marked `R2`, `R3`, `R4`, and `R5`. They are not polarized, but they'll look prettier if they face in the same direction.

Flip the PCB over and solder the legs (*all 8 of them*).

Finally, using your cutters, clip the legs close to the PCB.



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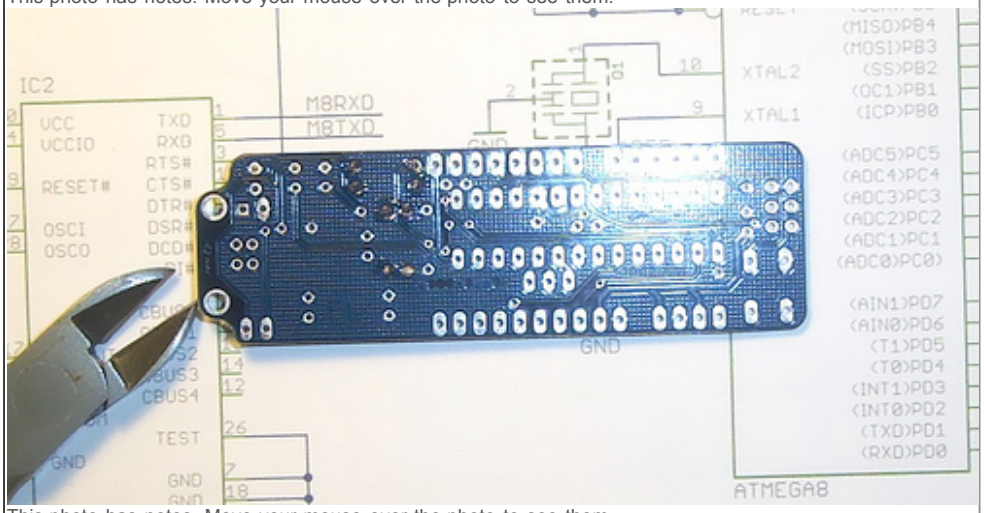

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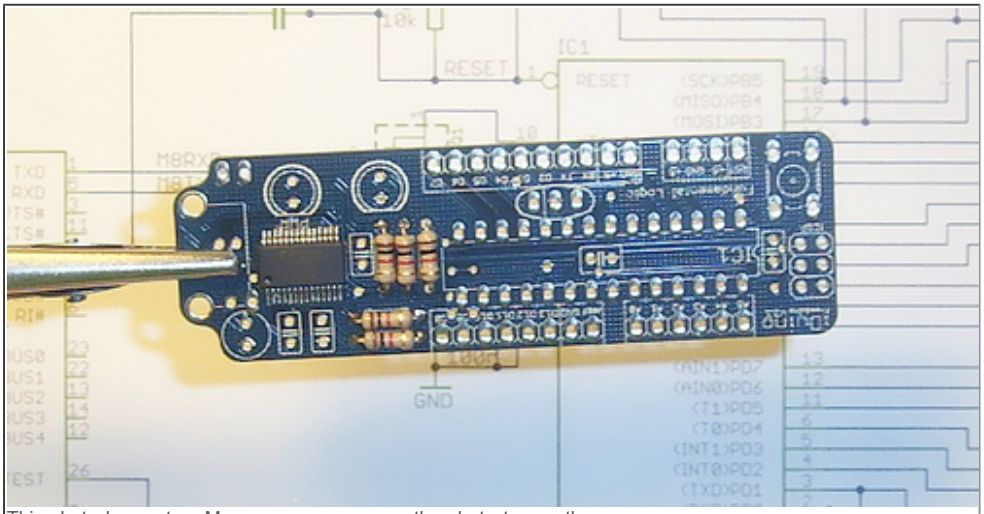

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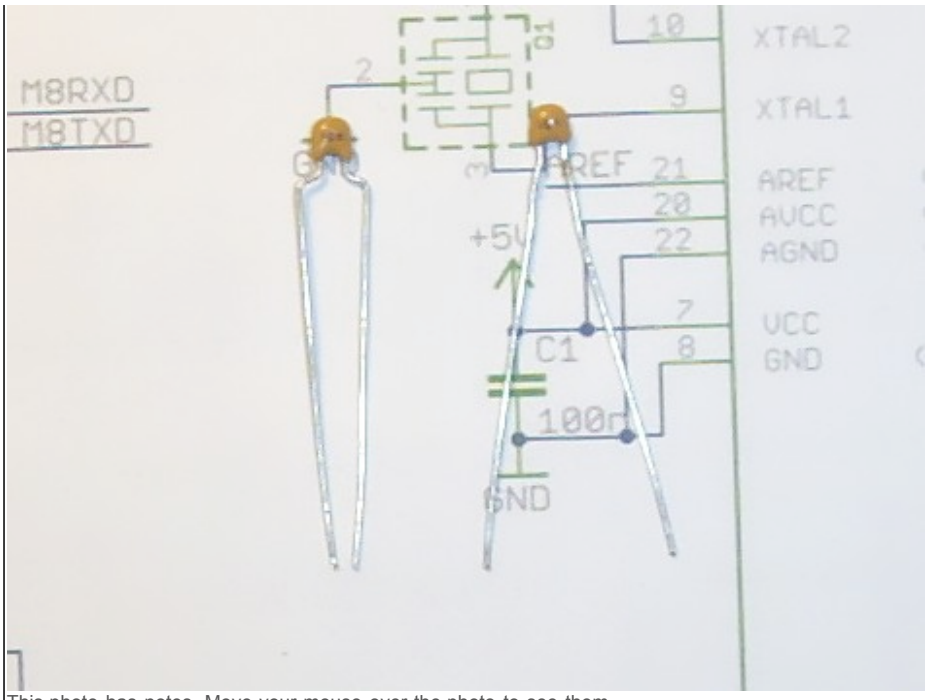
Install the 10KΩ resistor.

Repeat the last steps (bend, place, solder, clip) to install the 10KΩ resistor into R1.



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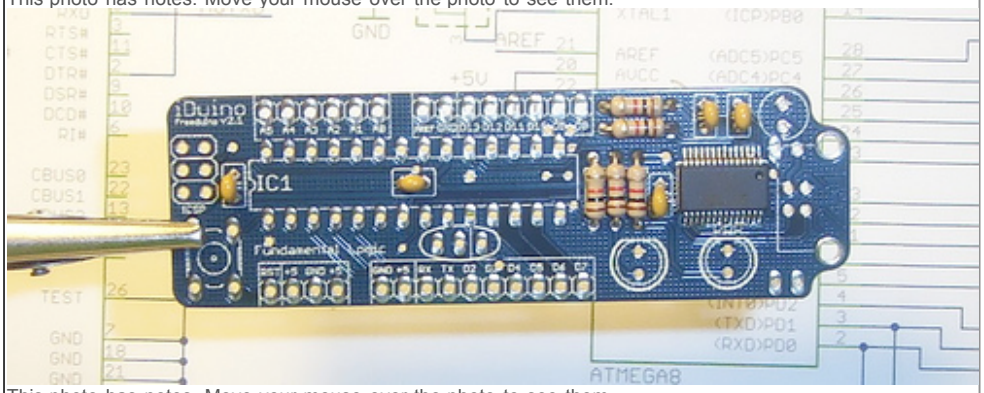

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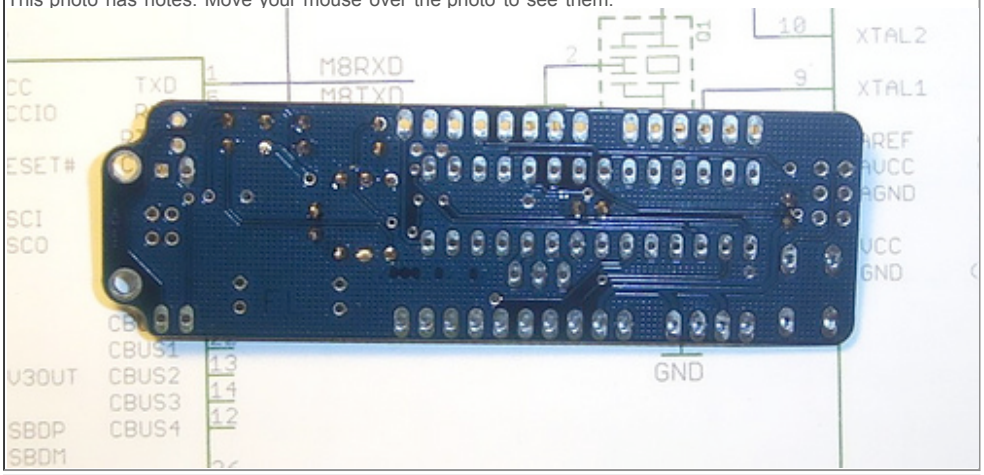
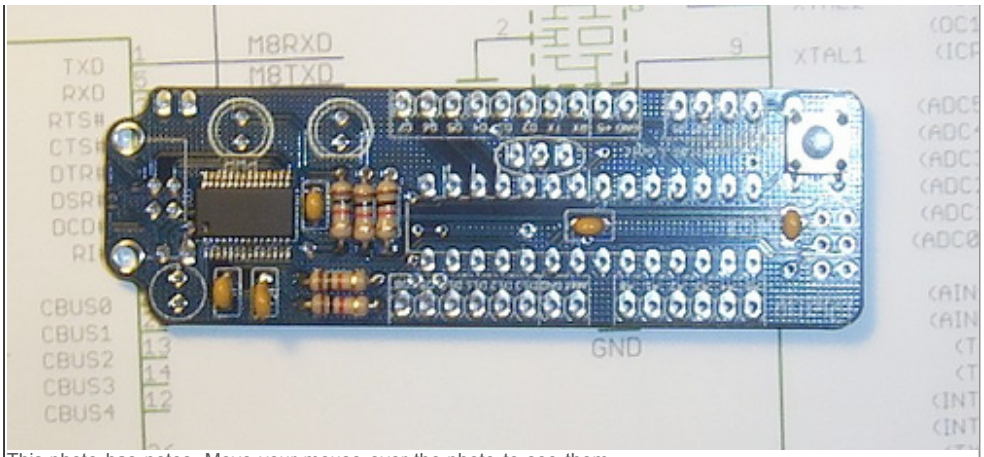


Install the 0.1µFarad ceramic capacitors.

If your capacitors have bent legs (on the left), you'll need to straighten them (on the right). This makes them sit flush against the PCB.

Place the capacitors in there spots; they are not polarized and they're all the same. Unless your concerned about high noise immunity or extreme transient response, you may omit the cap in the middle of the IC, the supply is already well filtered. If you don't want auto-reset, don't install the right-most capacitor.

Solder the capacitors and clip their leads.



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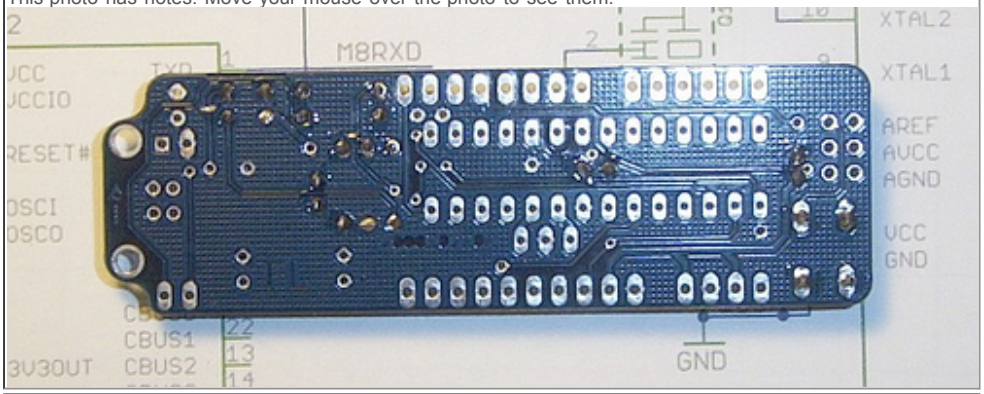
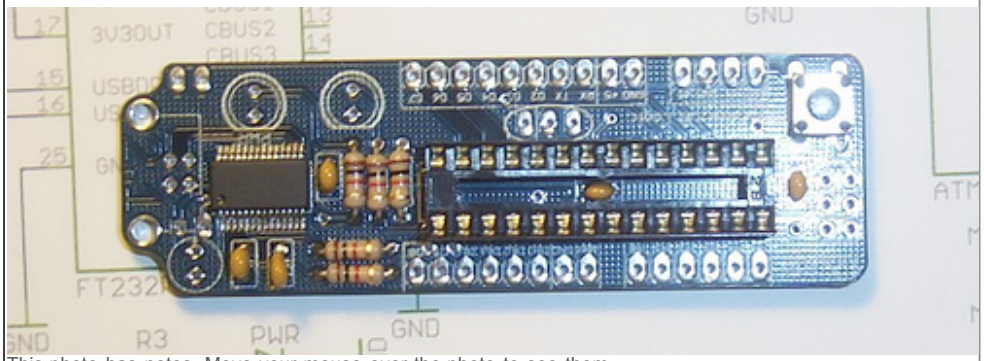


Install the reset switch.

Place the reset switch. Make sure the leads are on the top and bottom, not on the sides.

Solder the switch; you don't need to cut the leads, but use enough solder for a good mechanical connection.



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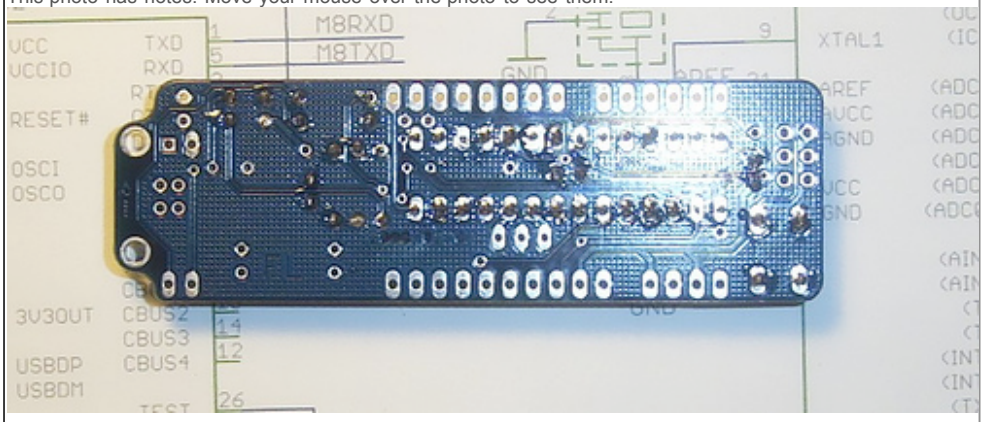
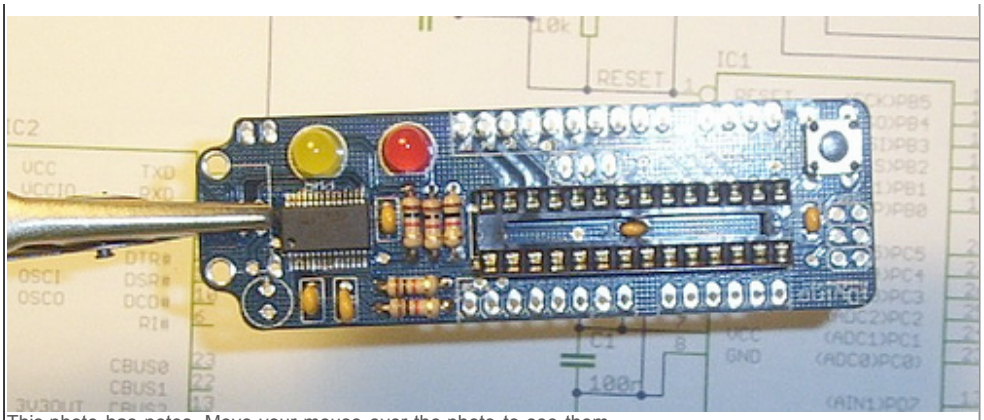


Install the IC socket.

When you install the socket, make sure the notch is close to the reset switch. Notice how that filter cap hides in the middle?

Flip the board over and solder all 28 connections. Be careful not to melt the plastic housing by lingering too long with your iron. You don't need to trim these leads either.

Install the LEDs.



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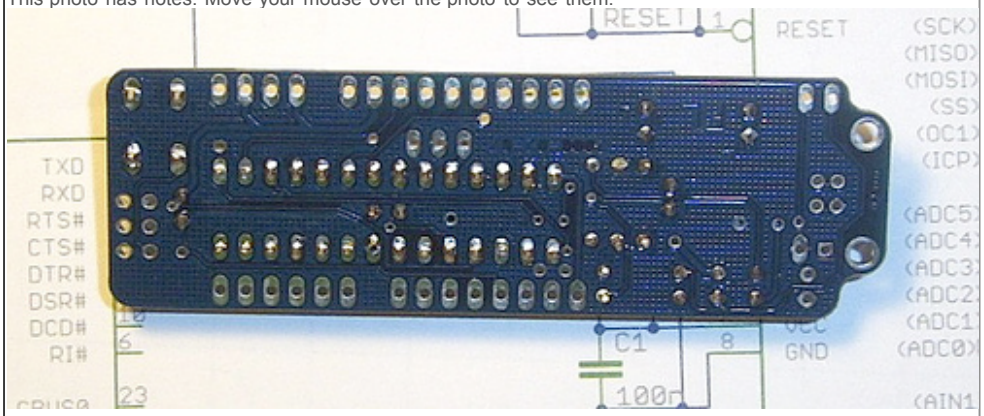
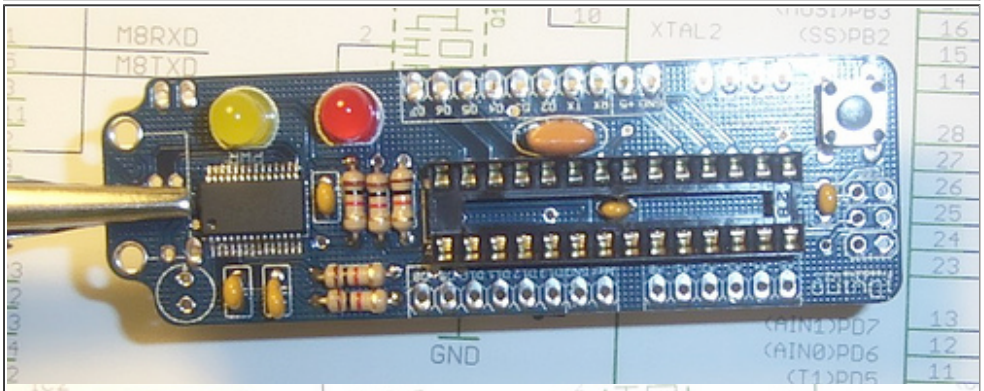
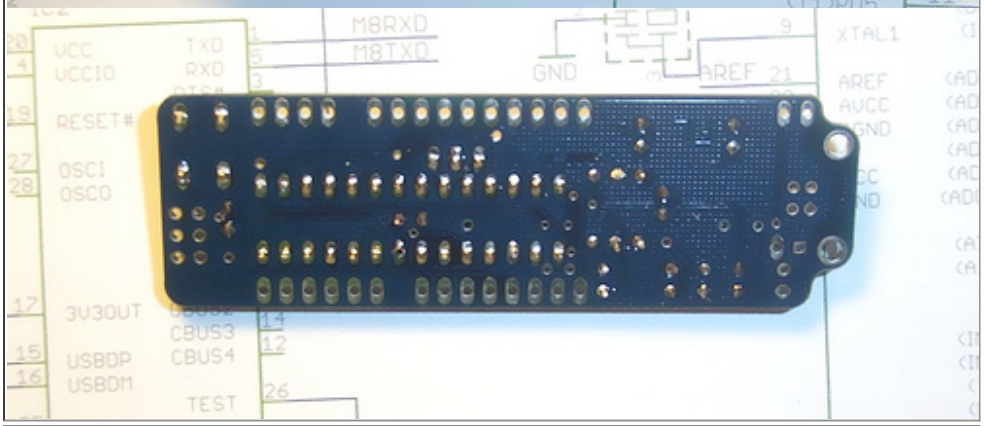


LEDs are polarized, make sure the longest lead (anode) is in the top hole, or the flat-side of the LED is aligned with the flat side of the board legend. You may whichever color you like in whichever position you like, it's up to you. I've placed the yellow LED in the power position and the red LED in the pin-13 position.

Solder both LEDs (4 leads) and trim the leads flush.

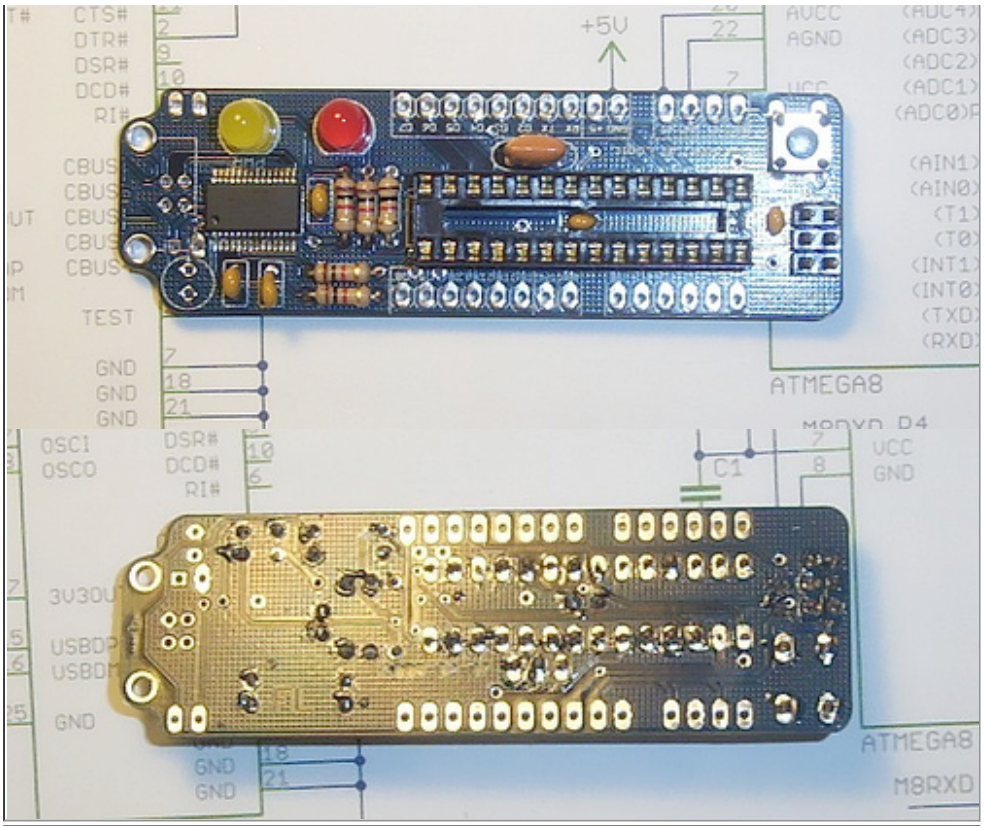




Install the resonator.

This is easy, place the resonator; it will work in either orientation, but I like to keep the value facing out.

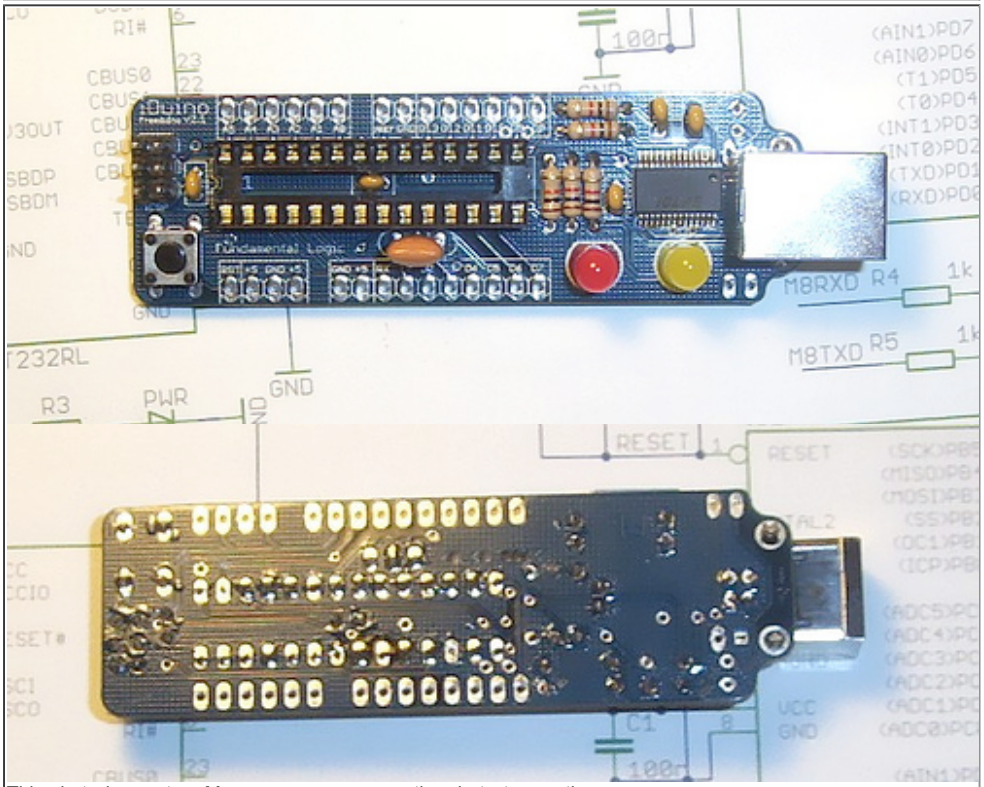
Solder all three leads. Even though they're short, you should trim them too.



Install the 2x3 ICSP header (or don't).

If you're going to use a programmer to reprogram the ATmega, place the 6-pin header. If you're only going to use the Arduino IDE, don't bother.

If you installed the header, solder all 6 pins.



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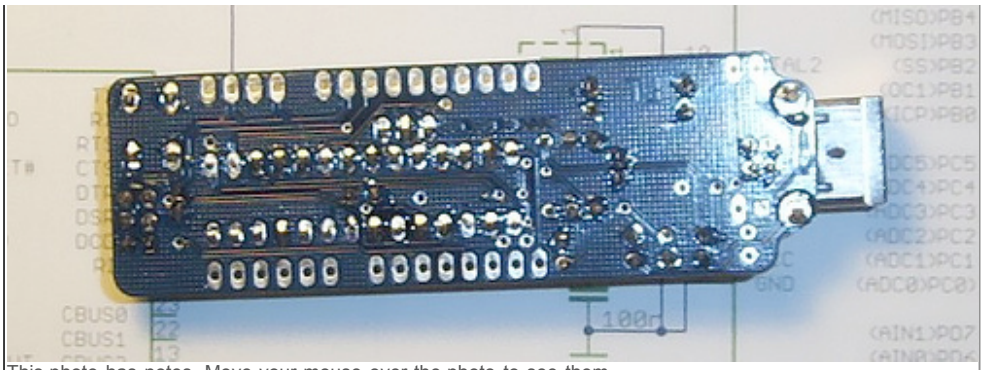
Install the USB connector.

If your USB connector wasn't pre-soldered, place the USB connector. The lugs snap in and will hold the connector in place temporarily.

Solder the 4 signal/power pins. Don't apply too much solder or you may short the pin to the housing.

Solder the USB connector lugs, *even if you're USB connector was pre-*



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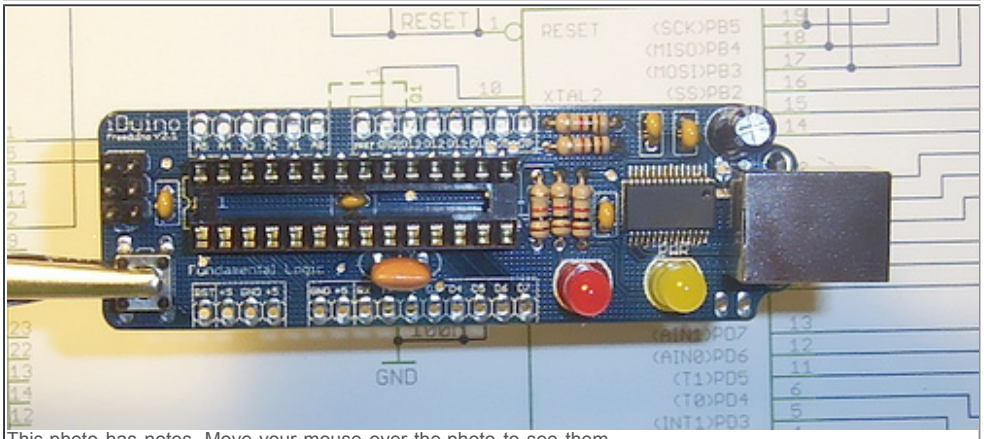
installed.

Apply a generous amount of solder to both lugs. These are the mechanical connection between the iDuino and the USB connector. You should have a nice pool of solder completely filling the hole.



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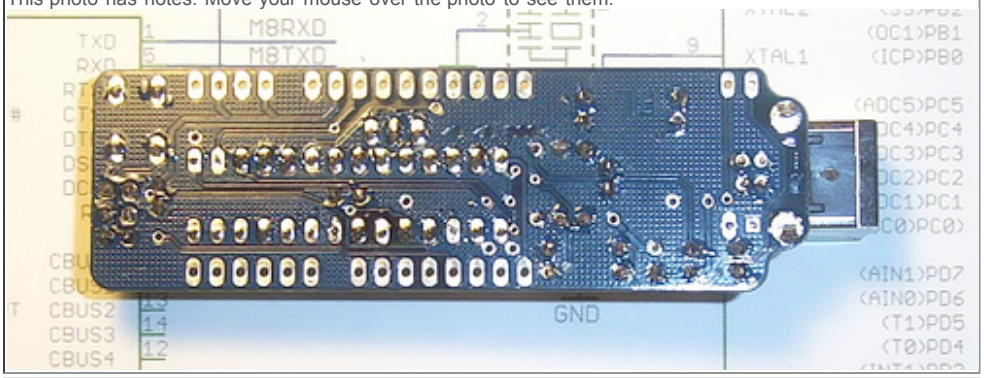
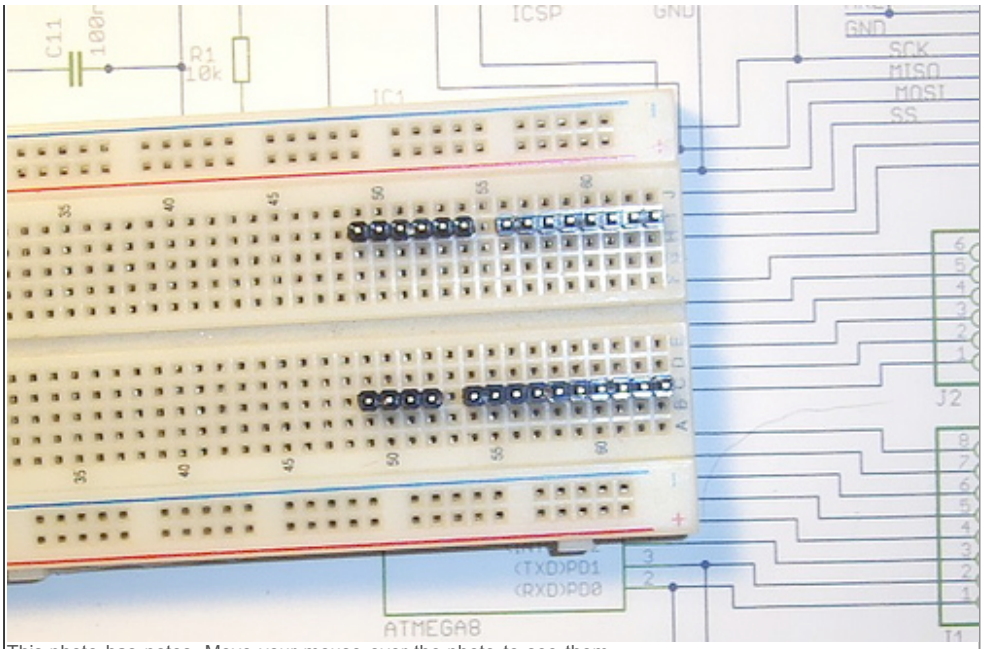
Install the electrolytic capacitor.

The capacitor is polarized, insert the longer lead into the hole marked with a +; alternately, install with the stripe facing out.

Solder and trip the capacitors leads.





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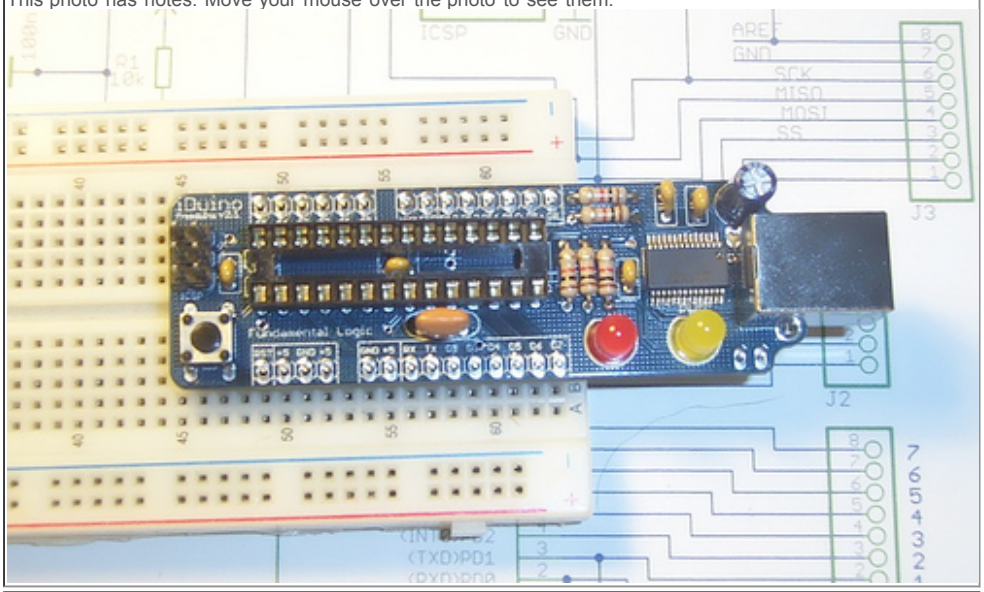
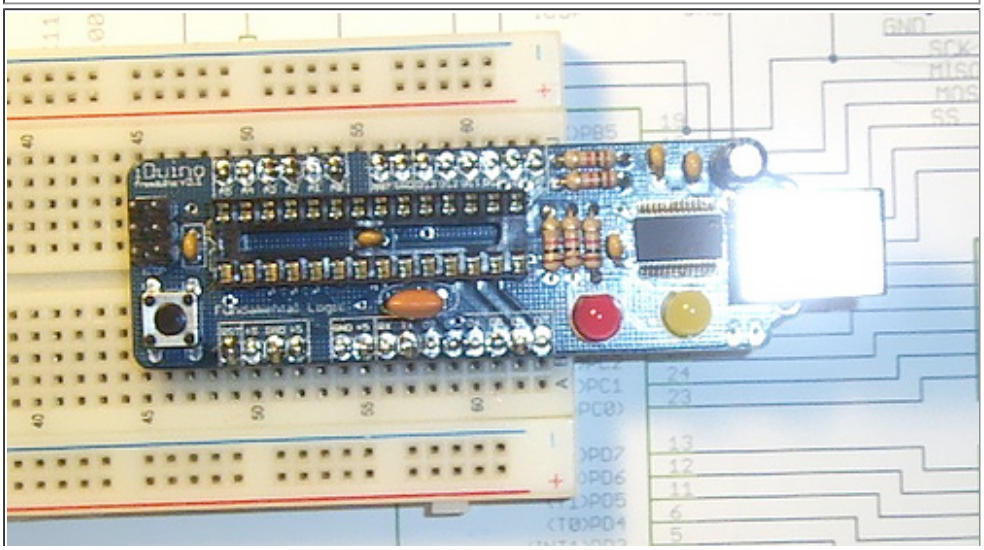
Setup the pin-headers.

In a bread-board, insert the headers as shown in the picture. We use the breadboard to keep the headers straight and level while we solder.

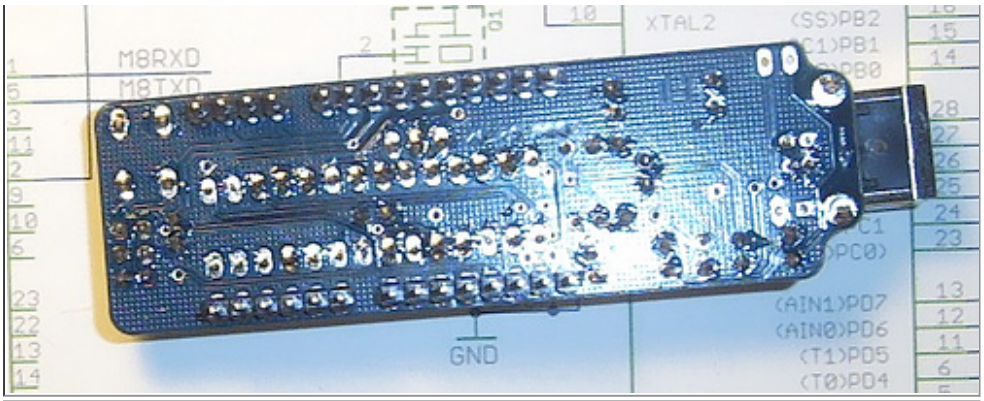
Place the iDuino on the headers.



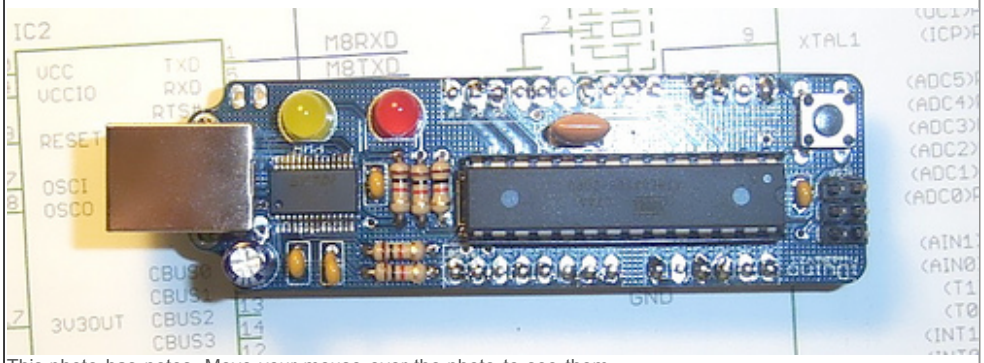


Solder the headers in place.

With the iDuino positioned on the headers, solder all 28 pins *on the top of the PCB*. Don't heat a pin too long or you'll melt the header, the breadboard, or both.



After a few seconds, remove the iDuino (with headers) and inspect your work.



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Install the ATmega chip.

Insert the Atmega IC into the socket. Make sure the notch is away from the USB connector. You may need to straighten/flatten the IC pins.