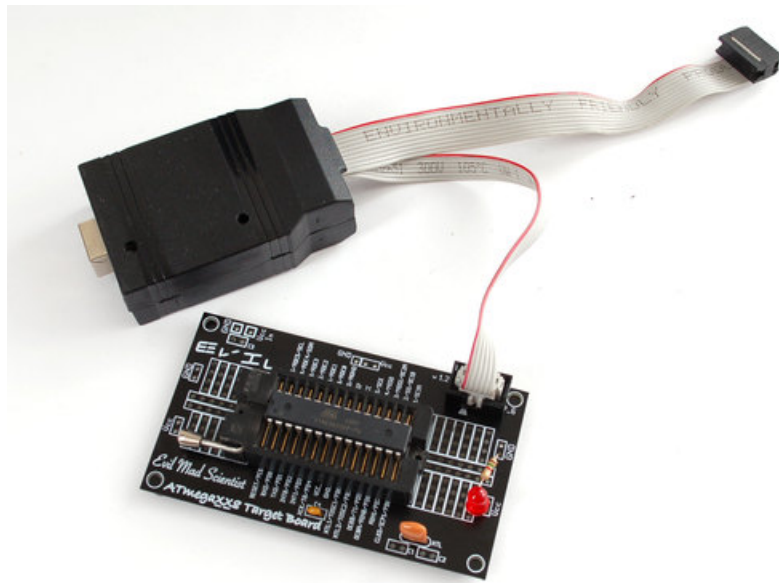# Mass AVR ISP Programmer

Created by lady ada
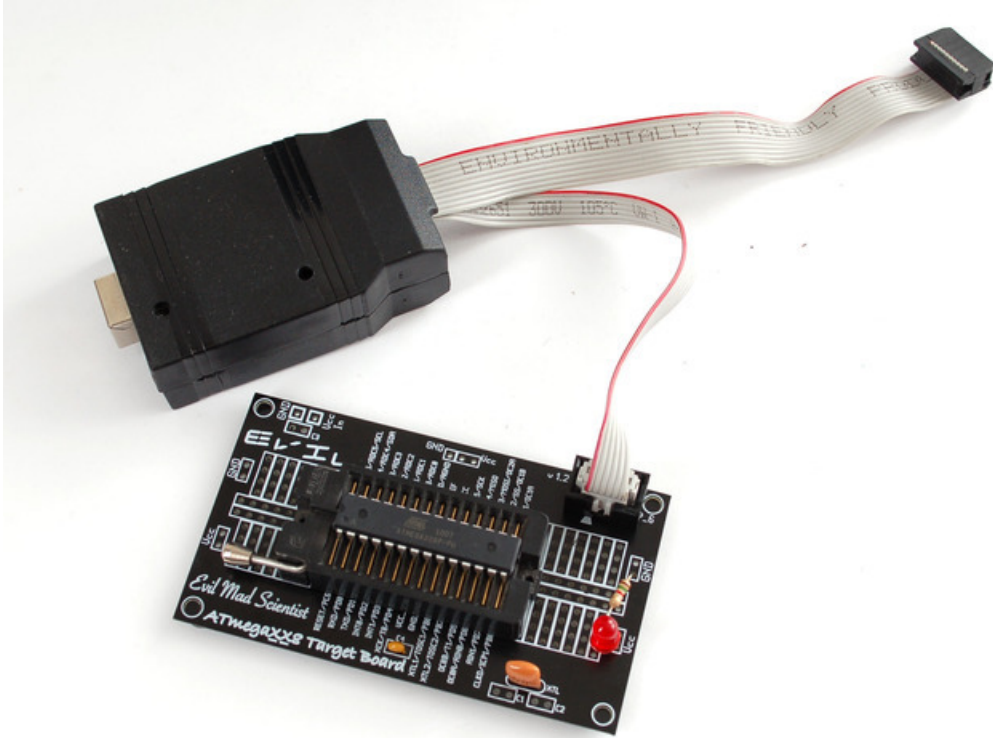

Last updated on 2018-08-22 03:35:03 PM UTC

Guide Contents

Overview

We often get the question "How do you program all the chips in your kits?" Well! Now we have a nice tutorial showing how its done!

Parts List

| Image	Name	Description	More info
	Breakout board	A PCB (either premade or from perf) that can hold the following. We like the EMSL devboards for this use, they are available in 'xx8 and '2313 formats.	Full dev kit
	ZIF socket	An easy-to-open ("zero insertion force") and close socket, we prefer the ones with gold contacts - a little pricier but will last a lot longer. Make sure they are 'universal' - can take both 0.3" and 0,6" wide chips!	ZIF socket
	Indicator LED	Use it for 'power good' or other blinky.	5mm red diffused
	6-pin box header	With a key, its less likely to insert the cable backwards.	2x3 pin header
	Ceramic Oscillator	16MHz is good, but really anything >4MHz is OK.	Ceramic resonator
	Ceramic 0.1uF capacitor (104)	Nearly any capacitor will do, just to provide a little power supply smoothing.	Ceramic Capacitor
	Rubber bumper	For protecting the PCB!	Rubber bumper
	Programmer	We like the USBtinyISP - not just because we designed it but also because it can provide 'target power' - so you don't need a seperate power plug!	USBtinyISP

Assembly

There's not a lot going on here, basically solder the ZIF socket in and wire up the socket! The crystal will make it easy to program lots of Arduino chips (which is what we've used this setup for)!
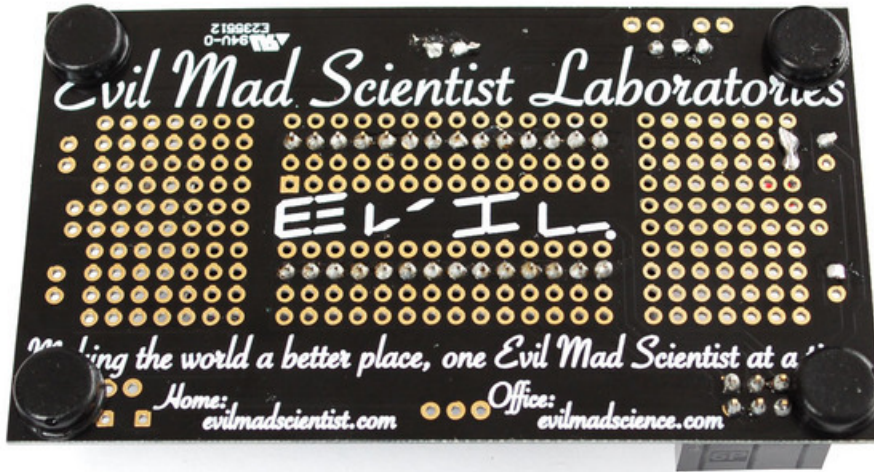
The magic in the pudding is the ZIF socket, which is basically a latching socket that when open is easy to insert chips without bending any pins and when closed is very secure. They are very satisfying to use and last for tens of thousands of cycles!
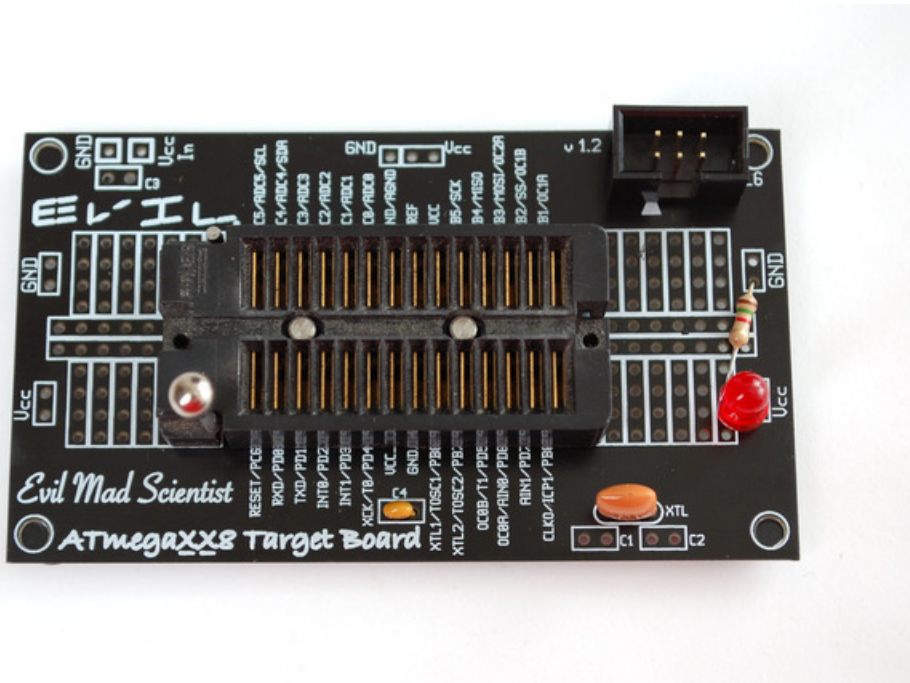
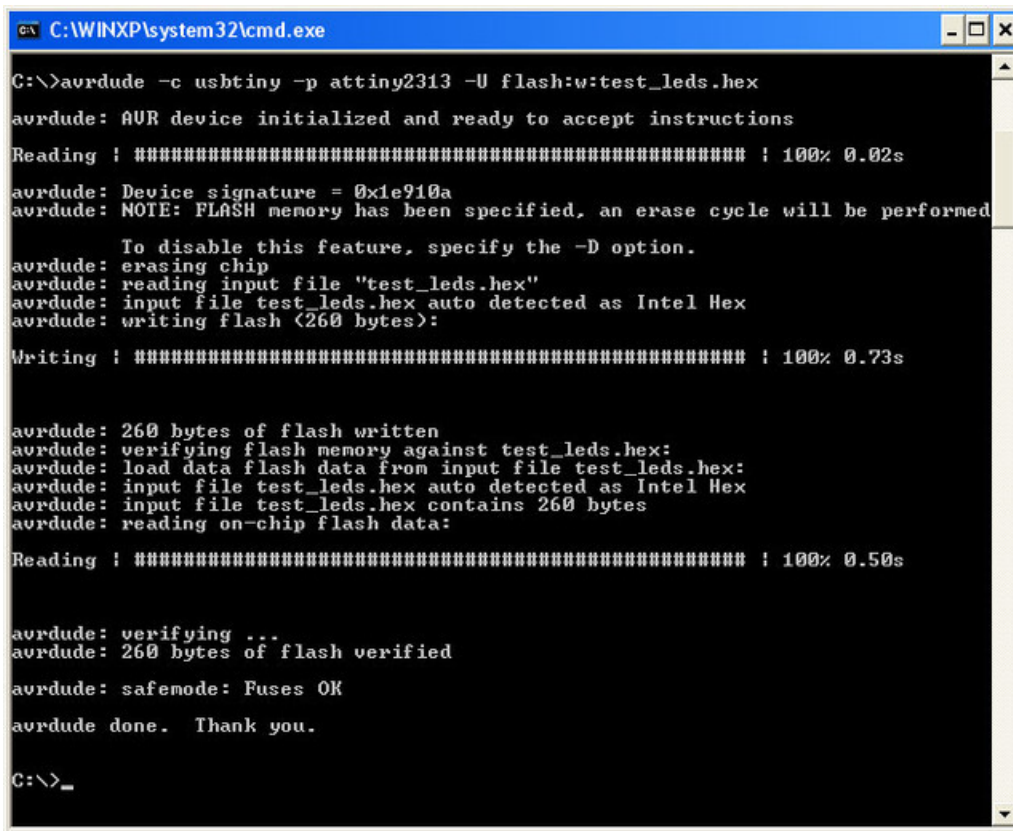The latch up, you can see the gold contacts.
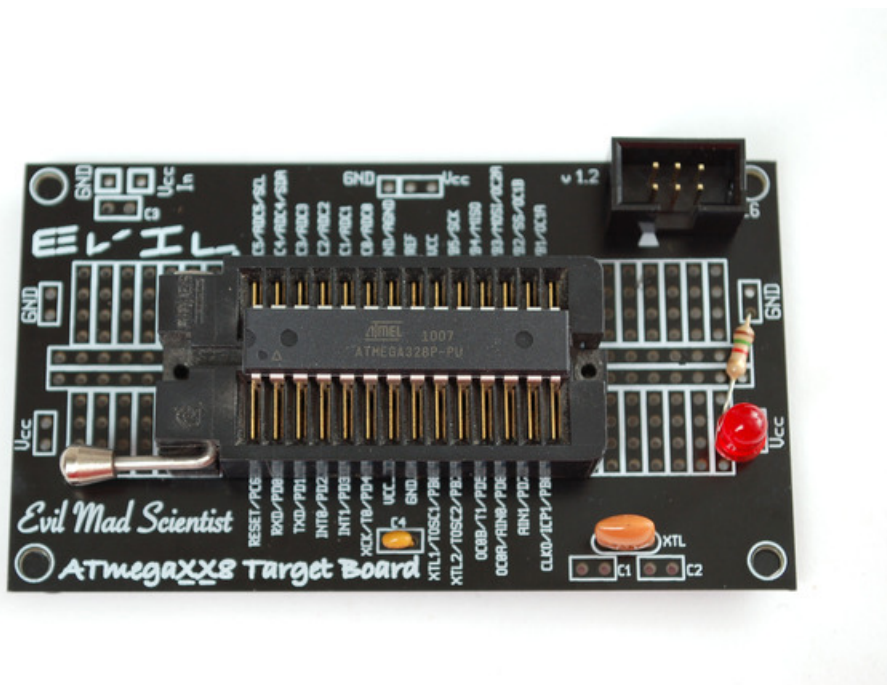
And down (holding a chip).

We put bumpers on the bottom - this will prevent accidental shorts (if you have a messy desk - which we do).

Use It!

This kind of board works best with a target-powering programmers such as an STK500 (or dragon) or a USBtinyISP.

For software we use AVRDUDE (https://adafru.it/aI5)with a Makefile so we can just type in "make program" or "make full" or simply a command like above and then watch it go. For the next chip, press the Up Arrow to re-run the last command. Zoom!

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