

Laptops

- Lenovo x200 Libreboot
- Lenovo x230 Coreboot

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- OneRNG
- ch341a


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3.3V CH341a Signal Output Modification

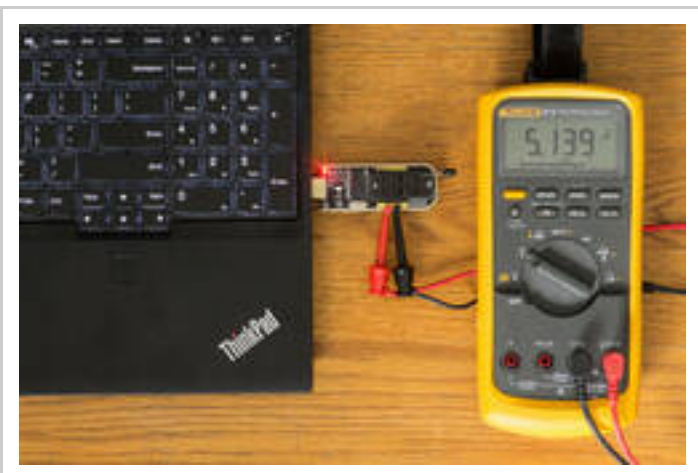
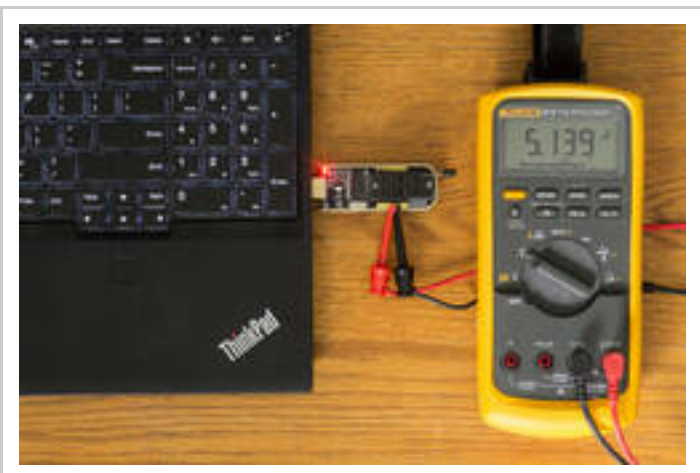
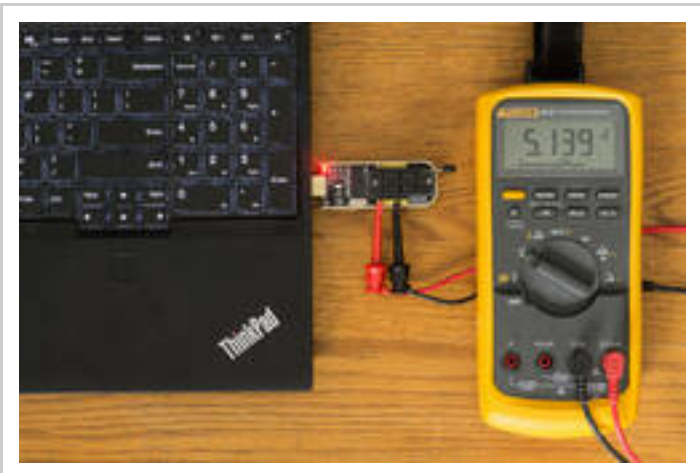
After realizing that my Black CH341a was not working as intended while **flashing my x230 with Coreboot**, (it was sending 5V to the signal outputs instead of 3.3V) I decided to attempt the  **fix** I found online. It went well and only took about 15 minutes. All that is required is a decent soldering iron, a couple of hand tools, some small wire and a good amount of patience.

usb-devices:ch341a:3v-ch341a-mod

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Testing for 5V



Disclaimer



I am an amateur electronics hobbyist. I like to think that I am fairly good at following directions, researching information and using common sense. Please, if you are not sure about how or why to do something, look it up online or have someone do the work for you! You risk damaging your equipment and/or possibly harming yourself.

Supplies Needed

- Small Wire** - I salvaged some small wire from a automotive 12V cell phone charger that I was no longer using (Hooray for never throwing things away!). The wire was small enough, but the insulation didn't like the heat from the soldering iron. You only need a couple of inches at most.
- Pick** - I had a small pick to assist with manipulating the pin and forming the wire afterwards.
- Wire strippers** - My strippers didn't go to a small enough gauge to strip, but I was still able to make it work.
- Flush Cutters** - I like the precision a pair flush cutters provide for trimming the wire.
- Soldering Iron** - I used a Hakko 936 soldering iron but any decent soldering station should do the trick.
- Solder** - Just some small solder will do the trick.

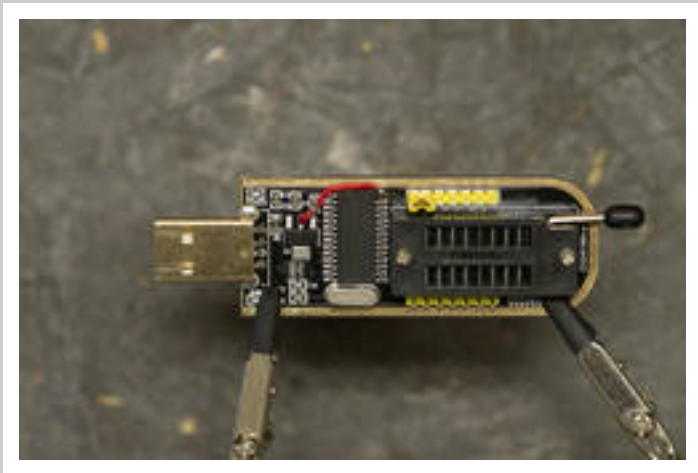
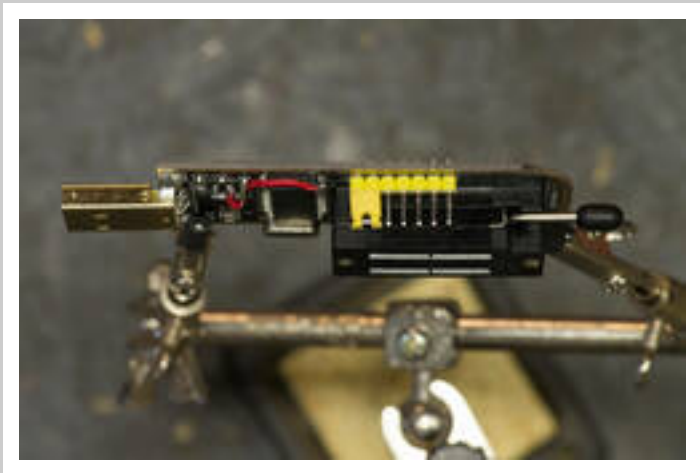
How do we get 3.3V?

We need to lift **pin 28** (VCC) to break it's 5V feed and connect it to capacitor **C4** (which also connects to **pin 9** (V3)). Then connect that to the middle pin on the **AMS 1117** (V out). Doing so results in feeding pin 28 of the CH341A with 3.3V from the output of the AMS1117 voltage regulator chip.

- CH341a
 - Pin 28** - VCC - Positive power input port
 - Pin 9** - V3 - Attachment of VCC input external power
- Capacitor C4 -
- AMS 1117 - Voltage Regulator

The Steps

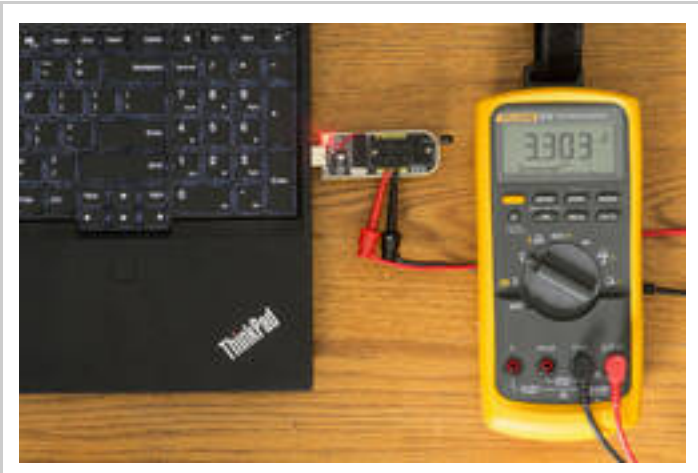
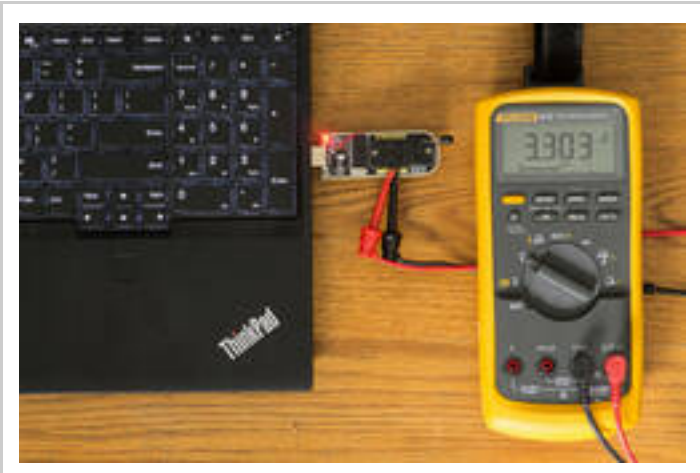
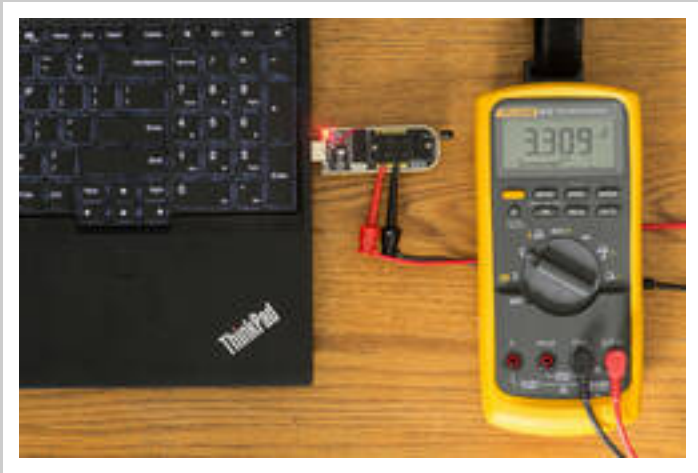
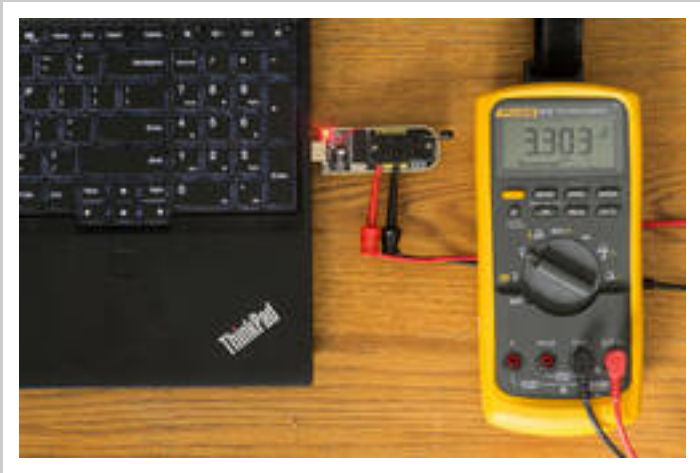
- Apply *slight* outward pressure with the pick to pin 28 while heating the solder to help free it from the pad. Once it becomes free, gently bent it upward so it is away from the circuit board.
- Cut the wires to length by holding them in place and eyeballing where you need to cut them. You will need one long and one short wire. Once cut to your liking, strip and tin the ends.
- Solder one end of the long wire to pin 28 and form the other end to fit in place near C4.
- Solder one end of the short wire to the center pin of the 1117 chip and form the other end to meet up with the first wire at capacitor C4.
- Place and solder both wires to capacitor C4.
- Lastly, bend the wires into place being careful not to put too much pressure on the solder joints and not bending the pin too much.
- To be extra cautious, feel free to place a small piece of electrical tape over the pad to prevent any accidental short circuits.



Testing for 3.3V

Take out your multi meter and verify voltage. You should now have 3.3V to all pins.

- GND > MISO = 3.3V
- GND > MOSI = 3.3V
- GND > CS = 3.3V
- GND > CLK = 3.3V



Helpful Links

-  [One Transistor](#)
-  [EEV Blog](#)
-  [DS1117 Schematic](#)