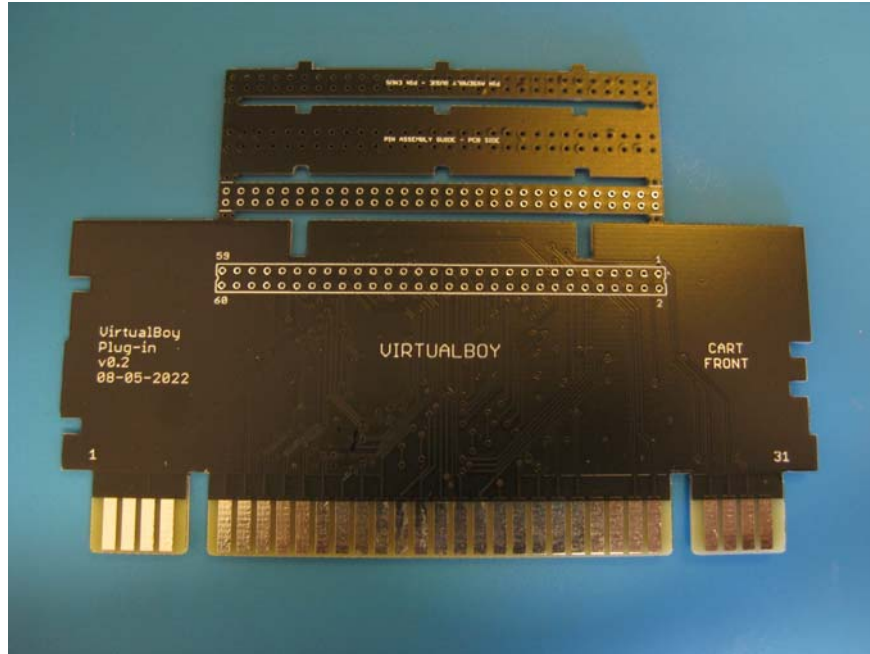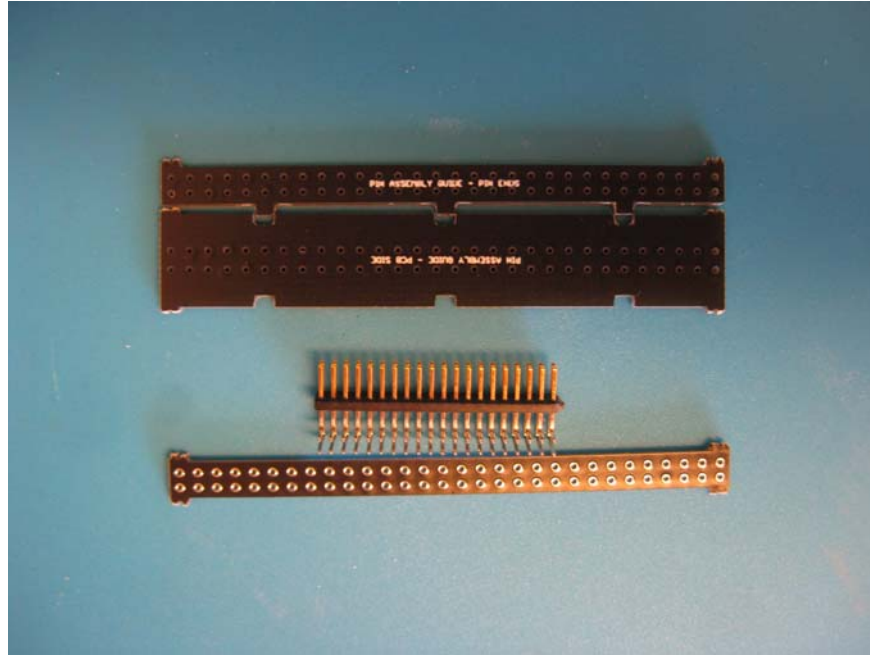# VirtualBoy Adapter Assembly

The VirtualBoy Adapter PCB with three pin guides attached to the top of the board.


Completed VirtualBoy Adapter.

Start the build by breaking off the pin guides from the top of the Adapter PCB. There will be 3 parts – the guide with the plated holes, the larger "PCB SIDE" guide with unplated holes, and the smaller "PIN ENDS" guide with unplated holes.

The plated hole pin guide will be mounted on the pins and soldered for alignment and rigidity. The "PCB SIDE" and "PIN ENDS" guides are used only for the assembly of the pins.

Also shown is a segment of the Harwin M50-390 pin header that will be disassembled for its pins (Reference Part #: Harwin M50-390##42). A total of 60 (2x30) pins will be used. The header segment pictured only contains 40 (2x20) pins so an additional 20 (2x10) pins were needed.
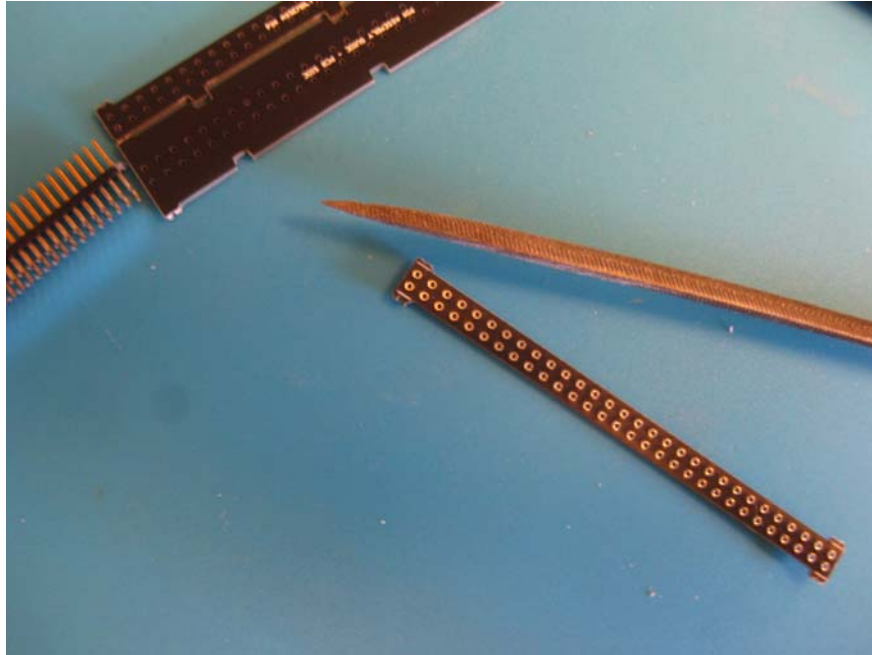
You will need to file down the plated pin guide to remove the breakaway tabs on the ends. You will also need to file the breakaway tabs on the ends of the "PIN ENDS" guide (DO NOT REMOVE THE THREE TABS THAT ALIGN WITH THE NOTCHES ON THE "PCB SIDE" GUIDE).
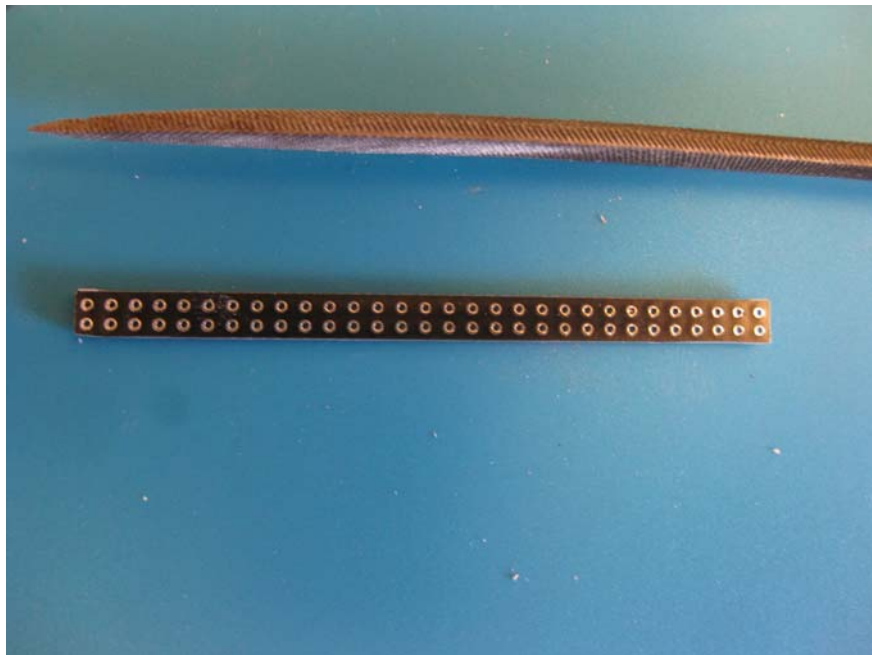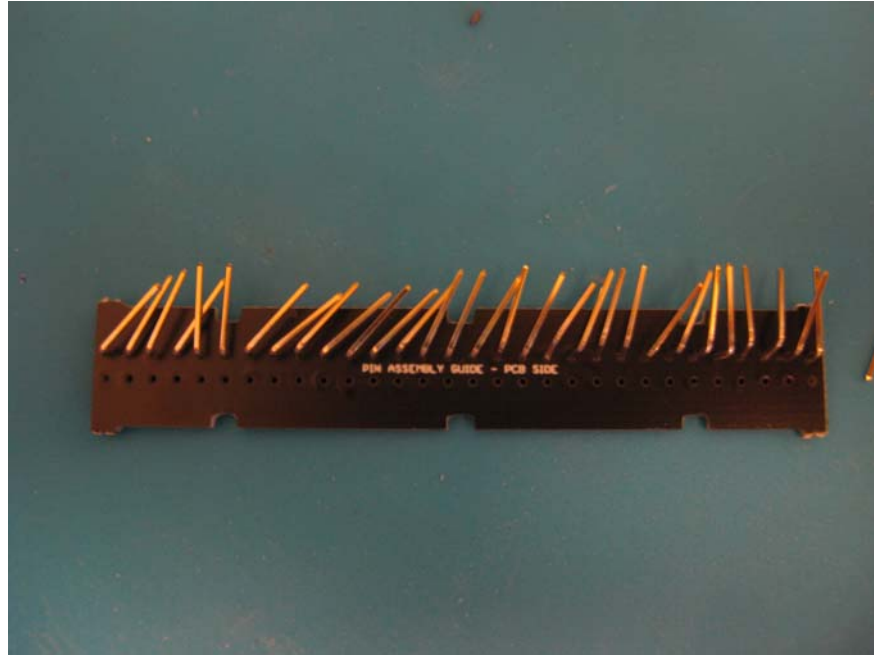

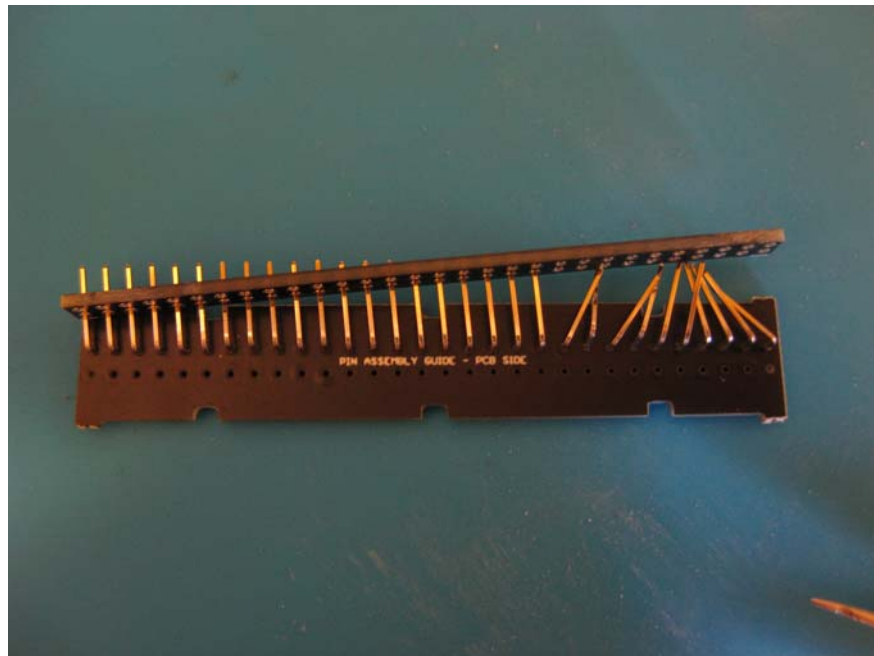
Plated pin guide ready for assembly.

Disassemble the Harwin M50 pin header. Sort the pins into short and long. You will need 30 short pins and 30 long pins.
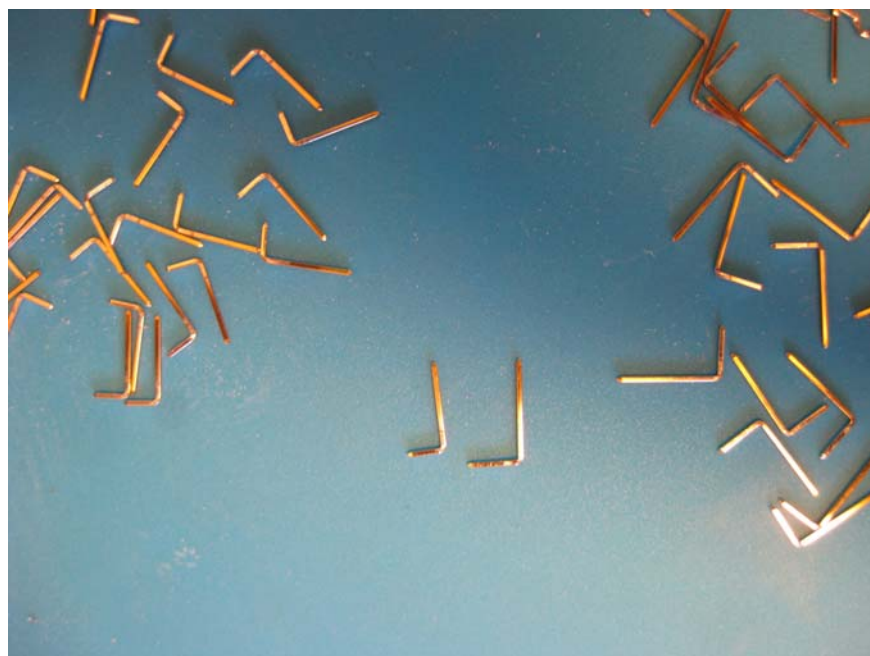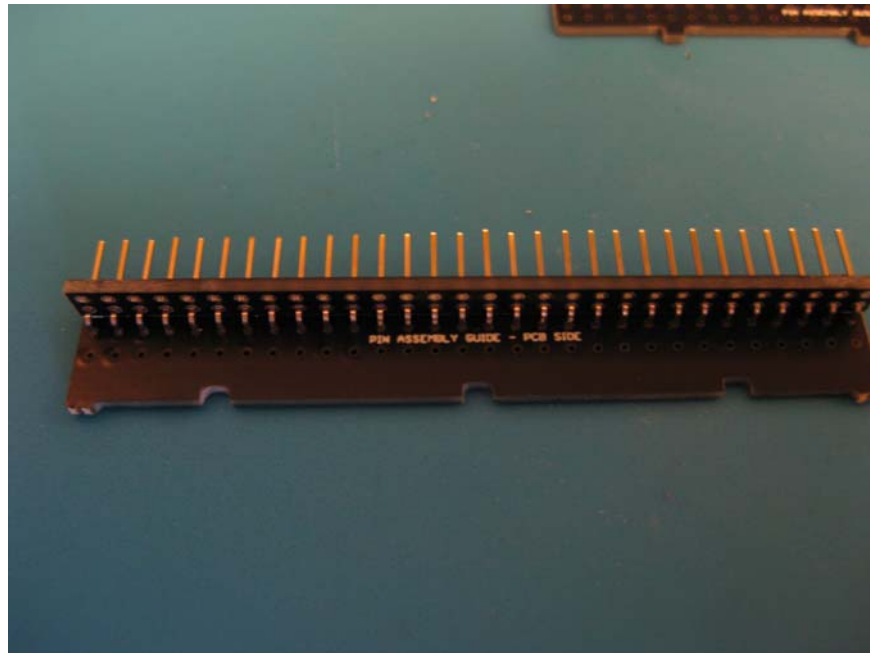

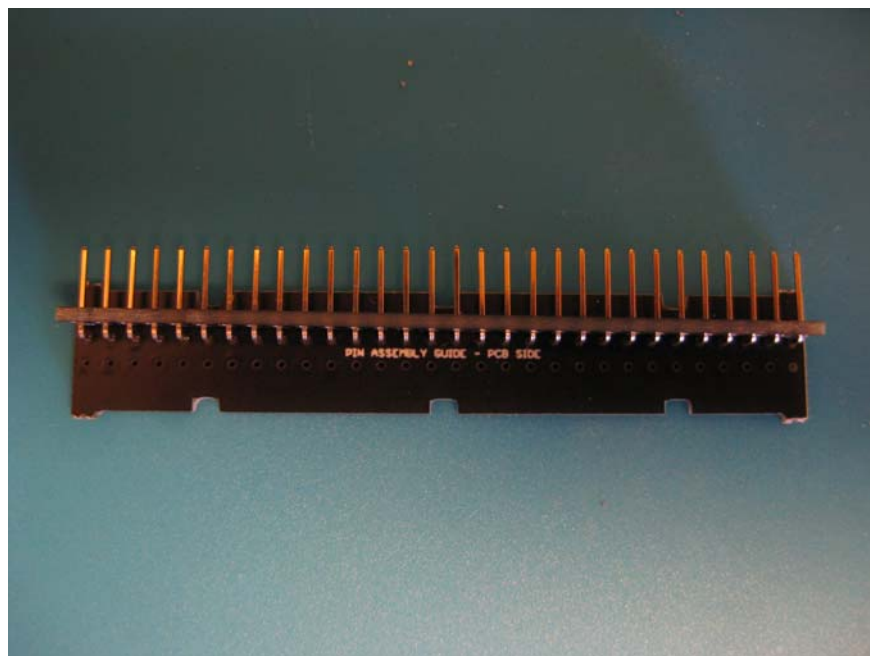
Short pins on the left. Long pins on the right.

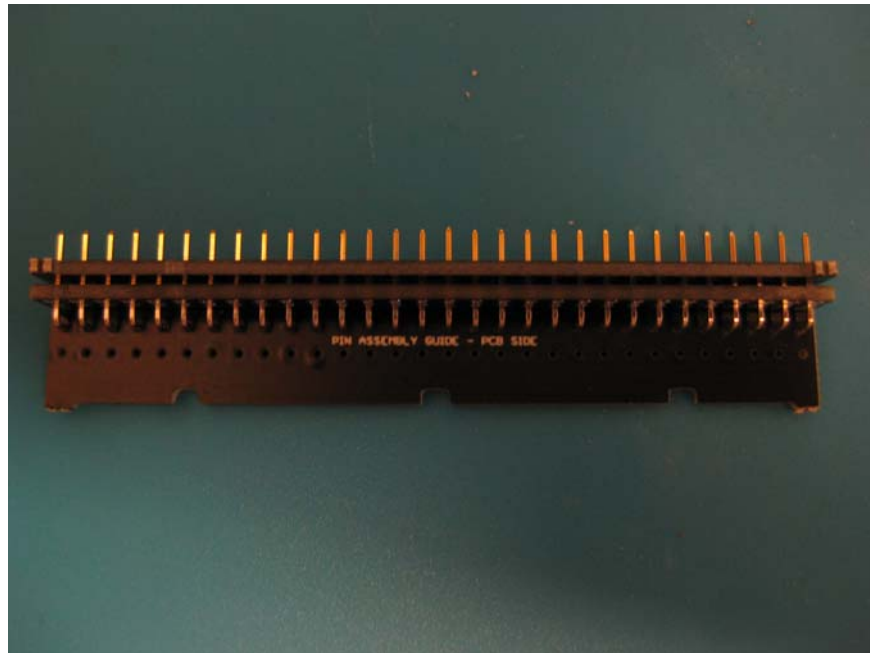Using the "PCB SIDE" guide, insert the 30 short pins into a row of holes.

Insert the pins into the bottom row of the plated pin guide.

All short pins inserted into the lower row of holes on the plated pin guide.

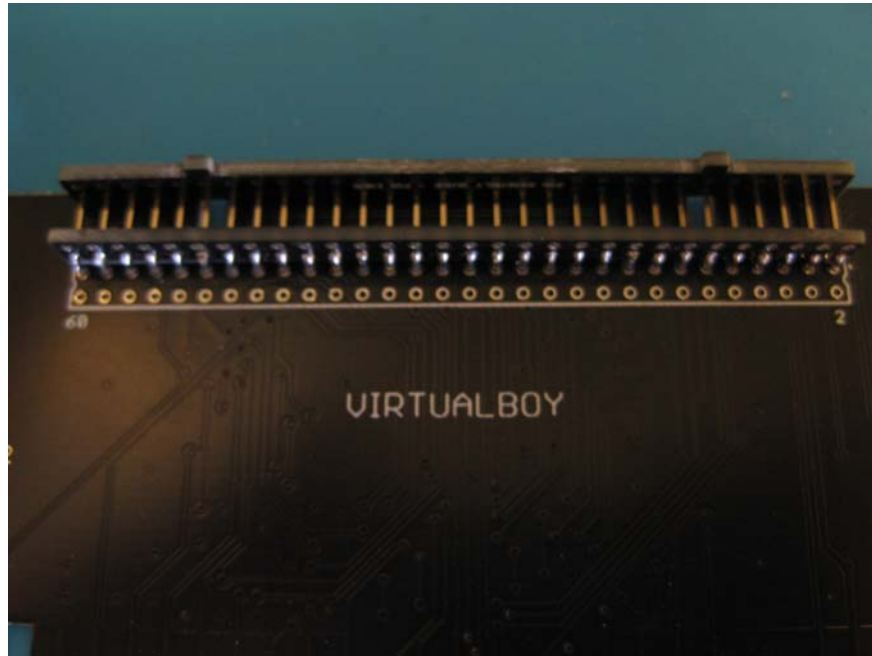Top view of the short pins in the plated pin guide.

Slide the "PIN ENDS" guide over the pin ends until it fits snug to the "PCB SIDE" guide. The three tabs should lock into the three notches on the "PCB SIDE" guide.

At this point, the plated pin guide is floating on the pins. Slide the plated pin guide towards the "PCB SIDE" holes while staying even across all pins. The bottom edge of the plated pin guide should be close to flush with the "PCB SIDE" guide.
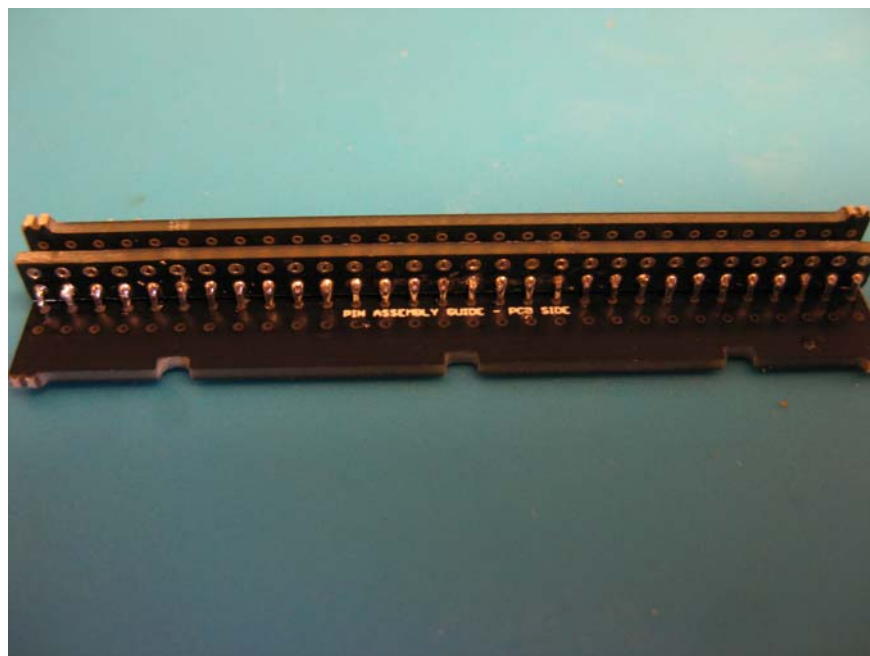

With the plated pin guide pushed as low as possible and even across all pins, solder the pins to the plated guide holes.
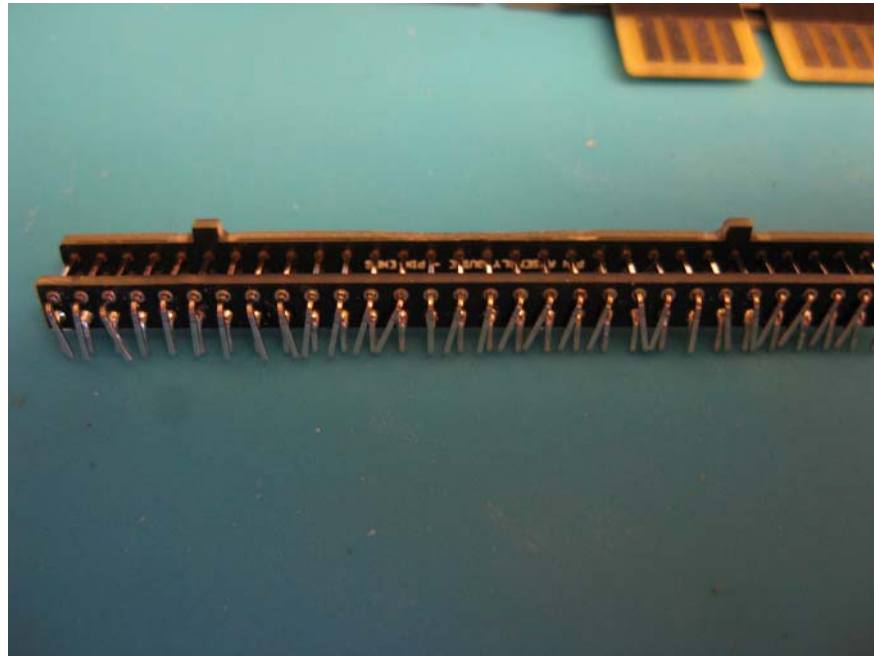
After soldering the short pins to the plated pin guide, remove the pin assembly from the "PCB SIDE" guide and test it on the Adapter PCB. The pins should be aligned and easily inserted into upper holes on the Adapter PCB.

Remove the "PIN ENDS" guide and flip it over. The three tabs will be away from the Adapter PCB. The "PIN ENDS" guide should be flush with the Adapter PCB.
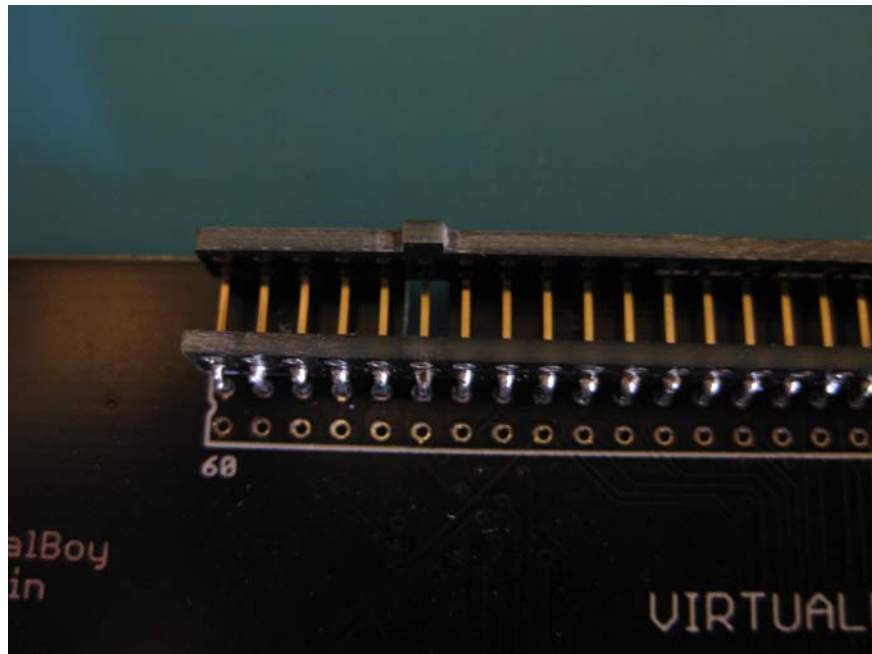
Close-up of the short pins mounted to the plated pin guide and the "PIN ENDS" guide.

After test fitting the short pins to the Adapter PCB, remove the pin assembly. You will now insert the 30 long pins into the upper holes of the plated pin guide and the "PIN ENDS" guide.
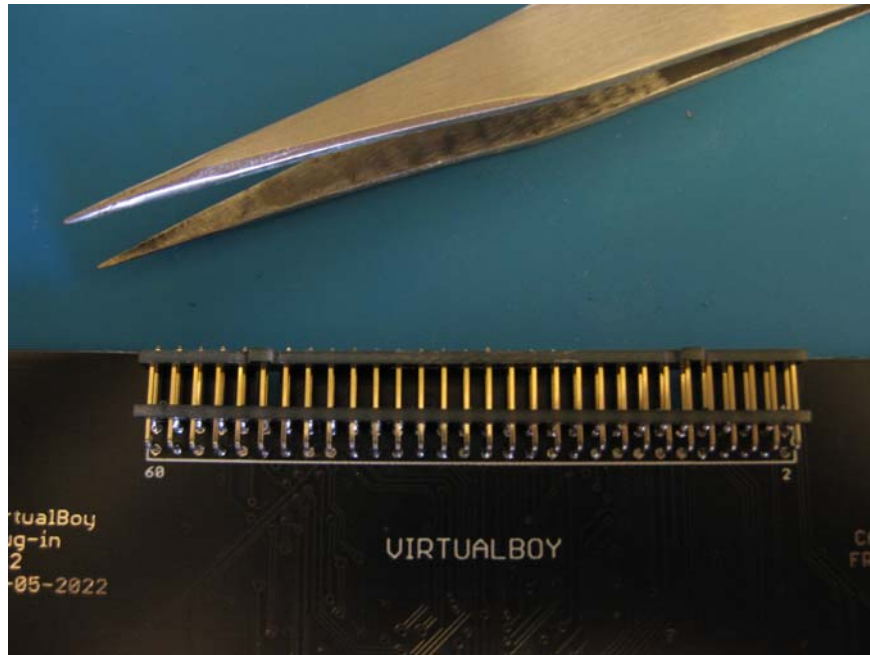
Once all of the long pins have been inserted into the upper holes, you can start inserting the pins into the Adapter PCB. Align the soldered short pins with the upper row of holes on the Adapter PCB.

Start on one end of the pin assembly and slide/turn each long pin until it lines up with its lower row hole on the Adapter PCB. You won't be able to fully insert the pins into the holes until all 30 long pins are aligned.

A set of tweezers and a steady hand helps with the assembly.
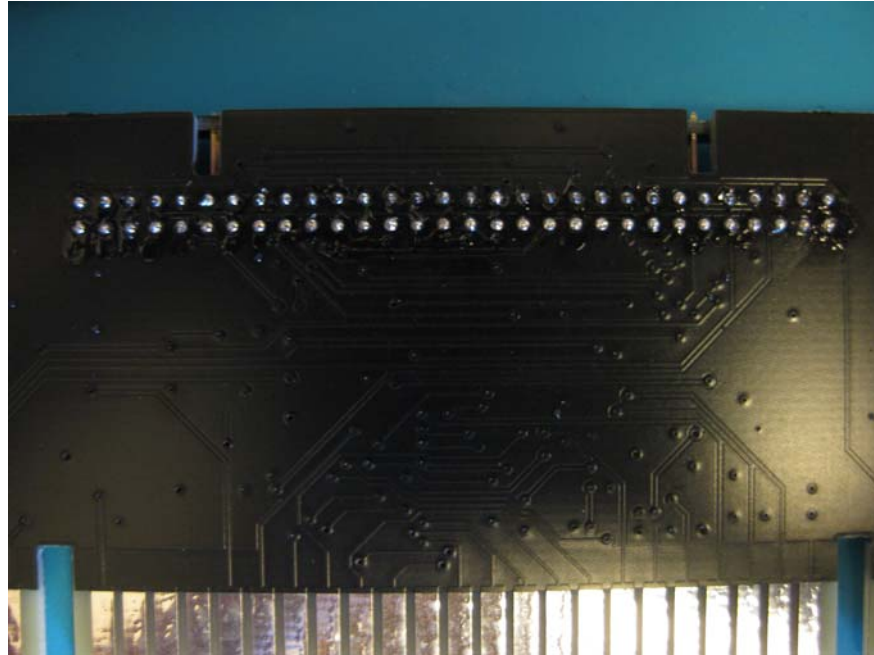
After all of the 60 pins are fully inserted into their holes, carefully turn the Adapter PCB over and solder the pins to the backside of the Adapter PCB. Be sure to check your alignment prior to soldering the pins.
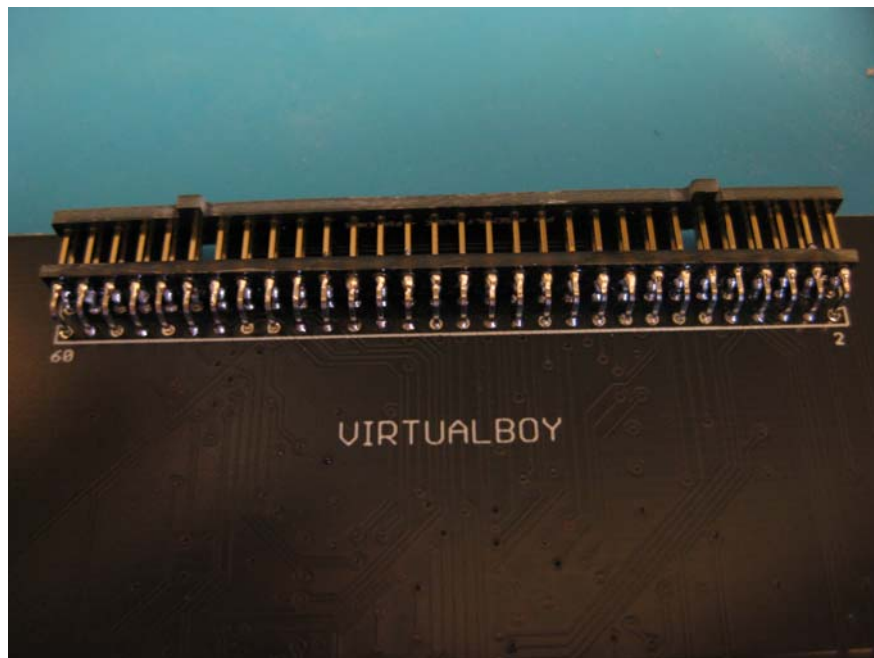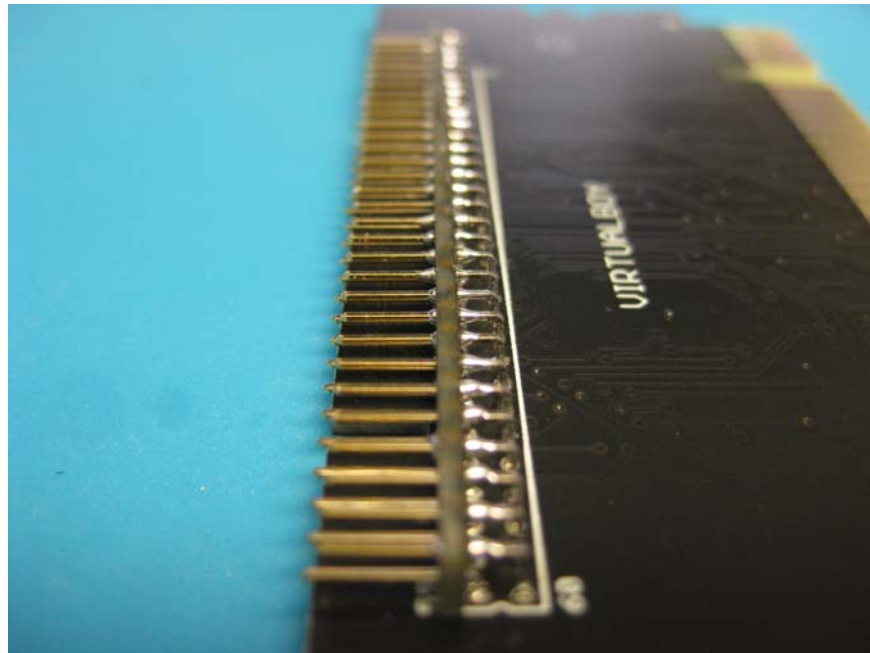

Flip the Adapter PCB back over and solder the long pins to the upper row of holes on the plated pin guide. Soldering the pins to the plated pin guide helps with alignment and rigidity.
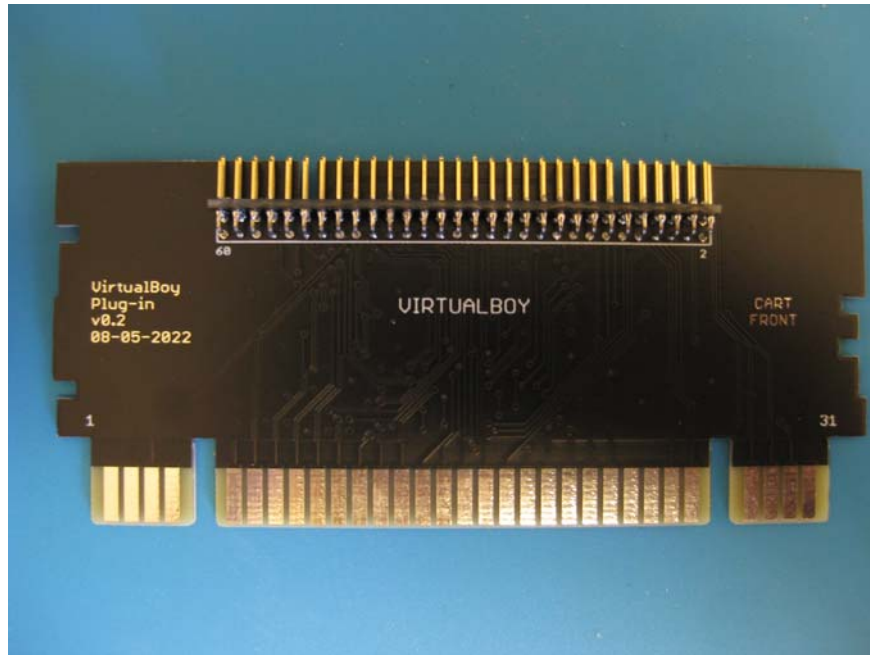
Completed VirtualBoy Adapter.
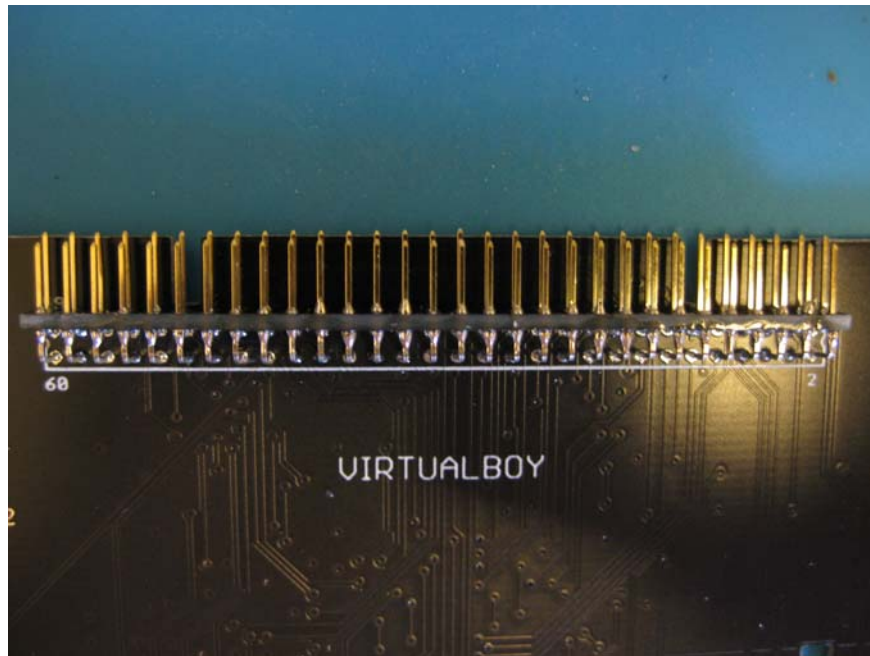
Close-up of final pin assembly.

Side view of final pin assembly.

Side view showing final pin assembly. When assembled properly, the pins will be parallel to the Adapter PCB.

If you've made it this far and still want to build the Adapter, remember to be patient and take your time as you assemble the pins. Rushing the assembly will only result in tiny pins getting scattered everywhere. Good luck with the build!