

Atari8Warez SIO2PC/10502PC Dual-USB Kit Assembly Instructions

Suggested Tools and Supplies for the job:

- A rotary tool with grinding stone and drill attachments
- Small screwdriver (*Phillips or Flat depending on the screw type of the SIO plug*)
- Wire cutter
- Wire stripper
- Soldering Iron, solder and flux
- Hot glue, and glue gun
- A precision (hobby) knife
- Isopropyl Alcohol to clean flux residue

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1. You will need an SIO cable with screwed type SIO plugs, like the one in Figure 1 below.
Cut one end of the SIO Cable close to the cable exit hole.



Figure 1

2. Unscrew and separate the two pieces of the SIO plug shell exposing the innards.
Separate the plug section from the shell and remove the remaining cable sheath piece.



Figure 2

Atari8Warez SIO2PC/10502PC Dual-USB Kit Assembly Instructions

3. Separate the pin holding section of the plug from the plug (if applicable) and remove all SIO pins and wires except for 3, 4, 5, 7, 9 and 10 and dispose them off. Cut the remaining wires down to 20mm length. Excess wire length may later cause fitting problems. The colors of the wires of your SIO cable may be different from the ones illustrated in Figure 3, so don't go by color reference, examine Figure 3 and go by wire positions instead. You may want to mark the wires or take note of their colors to remember which wire is which. Strip all wire ends with a wire stripper about 2mm long, with your soldering iron tin all wire ends.

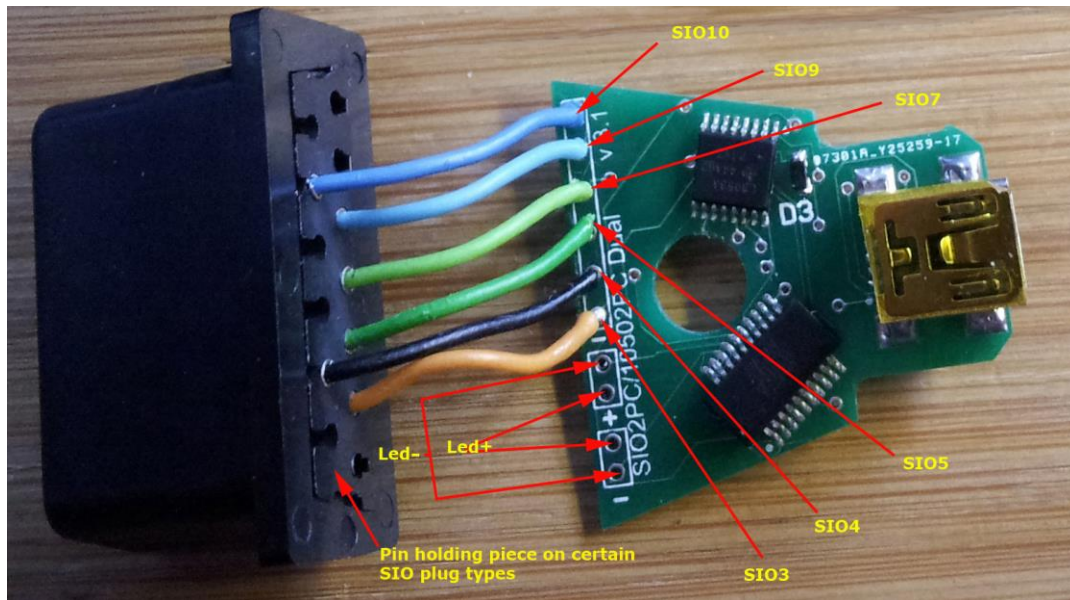


Figure 3

4. Insert and solder each wire end to the appropriate SIO connection holes on the PCB. Make sure to clean the flux residue after you finish soldering. Once the soldering is done, re-insert the pin holding piece of the plug back into the plug case (if applicable).
5. If you want to install the LEDs, keep reading; otherwise skip to Step 7 below. Make sure you connect the LEDs into their PCB holes paying attention to their polarity. LEDs will not function if not installed the right way. Check Figure 3 for correct positioning of the LEDs. The longer leg of the LED is the anode or positive, and the shorter one is the cathode or negative. Cut LED legs to suitable sizes, and solder the LEDs by using supplied LED wires. Use enough solder to fill the led holes and have a solid assembly. Clean any flux residue left on the PCB and on the solder points.

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- Now, you need to drill LED holes to the upper shell half. Examine Figure 4 for correct position and dimension of LED holes. Once the holes are drilled and the LEDs are inserted, a small amount of hot glue around the LED bottom will fix the LED to the shell and prevent them from falling inside the enclosure after the device is assembled.



Figure 4

- Next, you will need to make some modifications to the lower half of the shell for the PCB to fit: Take a look at Figure 5, and notice the yellow dotted section, with your precision knife make a cut to remove that section from the shell. You can now place the PCB on the shell and it will fit nicely.



Figure 5a – Before the cut



Figure 5b – After the cut

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- The cable exit-hole diameter of the plug must be at least 9mm for the USB connector end of the PCB to fit properly. Some SIO plugs have the necessary clearance, some are smaller. If yours is smaller, you'll need to enlarge the hole. The best way to do this is by using a rotary tool and a cone shaped grinding stone attachment. It is best to screw the two halves of the shell together before grinding, so that the pieces don't separate or shift during the procedure. After grinding, you may use the precision knife to trim the burr from the edges of the hole



Figure 6

- Once you finish, the assembly should look like the one in Figure 7



Figure 7

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10. Now it is time to fit the PCB into the plug. After you insert the PCB and the plug into the bottom half of the SIO shell, make sure the SIO wires don't interfere with the screw hole and that the USB plug end fits into the cable exit-hole properly. If the hole isn't large enough the upper half of the shell won't fit.
11. You're now almost done. Take the upper half of the SIO plug shell. Insert the shell screw and the nut into their holes and tighten it. You should end up with a finish like in Figure 8



Figure 8 – End Product