Raspberry Pi Dual 7-segment Breakout Board for Model B+

www.MaximumOctopus.com/electronics/piled7seg.htm

You’ll find the latest versions of the instructions and example source code at the address above.

Thank you for purchasing the Raspberry Pi Dual 7-segment board! I hope you have lots of fun with it!

If you have any suggestions for future boards then please let me know. I’ll send you some free boards if I like your idea!
Kit Contents

This kit was put together by a team of highly skilled octopuses; it should contain the following items:

1) The main PCB (23.8mm x 23.4mm)
2) 2x 7-segment LED displays
3) 2x 74HC595 shift registers
4) 2x 16 pin DIL sockets
5) 18x 330 ohm resistors
6) 2x 0.1uF capacitors
7) 2x 3mm LEDs

Important Things to Remember

This kit is designed to be used with any Raspberry Pi Model B+. Always be very careful when attaching the board to the Raspberry Pi, taking care not to bend any of the header pins. ALWAYS place this LED 8 board so that the left most pins (those closest to the capacitor), pins 1 and 2, are connected to the Raspberry Pi's pins 1 and 2 with the LEDs covering part of the Raspberry Pi main PCB.

Before soldering any components check and then double-check that they are correctly oriented.

Don’t rush, and have lots of fun!

If you need a good tutorial on soldering then SparkFun Electronics has a good one (https://www.sparkfun.com/tutorials/106) as does Adafruit Industries (http://www.ladyada.net/learn/soldering/thm.html).
Building Instructions

You will need a soldering iron, solder, an octopus (or a set of handy helper things) and wire cutters. To keep some of the large components in place while soldering you might find Blue-Tac useful to stop them moving around or falling off.

Take your time and check the placement of every component before soldering them in place!

**STEP 1 – The 40 pin header**

The PCB sits on “top” of the header’s pins, so that the pins are visible at the same time as the Maximum Octopus logo.

**STEP 2 – 18x 330 ohm resistors (R1 – R18)**

The resistors should be soldered next, place them so the main body of the resistor sits on the top of the PCB. Once they’ve all been soldered in place you’ll need to trim the leads using a pair of wire cutters.

**STEP 3 – The Sockets**

The IC sockets go next. These are optional; you might like to solder the shift register IC directly to the PCB. If you are using the sockets then don’t put them in until the end.

The ICs should be positioned so the “notch” faces the appropriate component C1 and C2 (the locations of the capacitors).

**STEP 4 – The Capacitors**

The orange (or yellow) capacitors are placed in position C1 and C2, at the “front” of the IC. It is not polarised, it can be placed any way around.

**STEP 5 – The 7-segment LEDs**

The 7-segment LED devices can only be fitted in one orientation.

**STEP 6 – The 2 3mm LEDs**

These go in the top left corner of the board. The long lead goes in the hole closest to the resistor.
If you decided to socket the shift register IC then now it’s time to place it in to its socket. It should be socketed so the notch on the chip is on the same side as the notch on the socket – facing the 0.1uF capacitor.

Before you try to carefully slot the chip in to socket you’ll notice that the legs are spread out too much to fit. They’ll need to be bent inwards before they’ll fit. DO NOT FORCE IT.

The way I like to do this is by very carefully pressing each side of the chip on my desk until both sets of pins are parallel. Once the legs are parallel it will take a bit of force to push the chips in to the sockets, be gentle and patient.

On the website, at the address at the top of this document, you’ll find many example programs for the Raspberry Pi to get you going.

Start off with example1.py, then once you’re happy with how it works try the other, slightly more advanced programs.

Have fun!
Note: the two capacitors on the left hand side are actually, physically, much closer to the +V and GND connections of each shift register IC.
Example source code for the Raspberry Pi can be found here:
www.MaximumOctopus.com/electronics/piled7seg.htm

If you have any comments or suggestions for this kit then please let us know.

For more information, updates and details of new kits check out the following links:

Website       www.MaximumOctopus.com
Twitter       http://www.twitter.com/maximumoctopus
Blog          http://maximumoctopus.wordpress.com
Online store  http://store.MaximumOctopus.com
YouTube       https://www.youtube.com/user/freshneyorg

This kit was designed and manufactured in the UK.

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