

# “Le Strum”

*Fine MIDI strumming since 2013*



The information on this page is the bare minimum needed to build the project, however you will find expanded information, including build photos, at <http://six4pix.com/lestrum/>

Here are the component designators used on the PCB:

**R1, R2** - 220 Ohm (red-red-brown code) resistor  
**R4, R8** - 1 kOhm (brown-black-red code) resistor  
**R3, R5, R6, R7** - 10 kOhm (brown-black-orange code) resistor  
**C1, C2, C3, C4, C7** - 100nF Ceramic Capacitor (104 code)

The following components must be soldered the correct way around. Use the markings on the PCB for orientation or check the above link if in doubt

**C5, C6** - 4u7 electrolytic capacitor  
**D1** - 1N4001 Rectifier Diode  
**D2 - D17** - 1N4148 Small Signal Diode  
**REG1** - +5V 100mA Regulator TO92  
**MIDI, PWR** - 3mm LED

Solder the IC sockets before fitting IC's. Check orientation of pin 1 notch/dimple with markings on PCB)

**IC1** - PIC16F1825 Microcontroller with LE STRUM firmware, fitted into 14 pin IC socket  
**IC2, IC3** - 74HC595 Shift Register, fitted into 16 pin IC socket  
**S1-S37** - 6mm Momentary Tactile Switch  
**ONOFF** - Miniature slide switch  
**MIDI\_OUT** - 5 PIN DIN socket PCB mount  
**ICSP** - 6 way SIL right angle pin header (optional)  
**STYLUS** - 4mm plug on wire

Fit the PP3 battery box last, to the underside of the PCB. Trim down all solder joints first and use the M2.5 machine screw and nut to secure it through the hole beside IC1

Attach the 4 brass pillar "legs" (20mm at front, 25mm at back) using the M3 machine screws

LE STRUM rewards experimentation. Try playing with dynamics (Envelope attack and release) and reverb/delay effects on your synth or sound module. LE STRUM generally sounds best with big polyphony and a bit of release so that the sounds are not cut too abruptly.

If you are using any of the patches that enable "Organ Buttons", this will mean that LE STRUM is outputting on two different MIDI channels; when you press a new chord button, the chord triad immediately plays on MIDI channel 2. Notes triggered with the stylus play on MIDI channel 1. For this to work effectively you need to route channels 1 and 2 to different sounds.

I hope you enjoy LE STRUM. If you have any problems, please contact me at [sixtyfourpixels@gmail.com](mailto:sixtyfourpixels@gmail.com) or via the site where you ordered LE STRUM

LE STRUM is an open source, open hardware project. All input is welcome, from wish-list ideas to hacks, mods and enhancements!

Cheers!  
Jason Hotchk155

## **\*\*STOP PRESS\*\*FIRMWARE REV 5 ADDENDUM\*\***

Your kit includes **Version 5** of the Le Strum firmware which adds some new features which are not yet on the included quick reference card:

**To change the MIDI channel:** Press and hold MODE, then press "A Minor" button (the activity LED should blink rapidly). Keep MODE pressed and touch one of the pads 1-16 to select the MIDI channel for strum notes

**To change the "Organ Buttons" MIDI channel:** Press and hold MODE, then press "A7" button (the activity LED should blink rapidly). Keep MODE pressed and touch one of the pads 1-16 to select a MIDI channel for chords

**To transpose the "Organ Buttons" chords:** Press and hold MODE, then press "A# Major" button (the activity LED should blink rapidly). Keep MODE pressed and touch one of the pads 1-8 to select the octave for the chords

All of these settings are saved when the power is off

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