OPL2LPT soldering instructions.

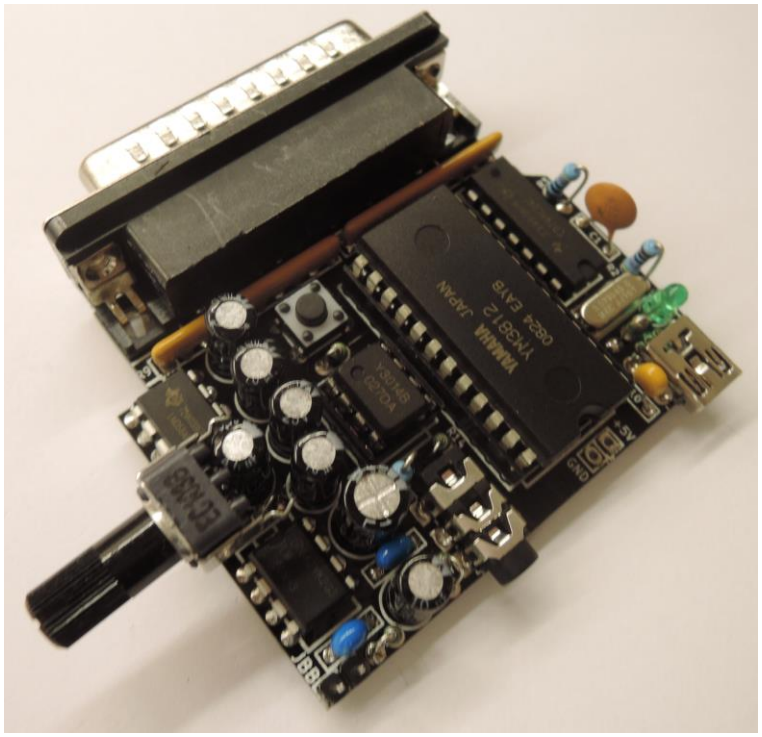
Serdaco BVBA, November 2nd 2017
DRAFT version

The kit

OPL2LPT is an FM synthesizer board for parallel port.

The kit uses all 80's style classic through hole components. No SMD soldering skills required.

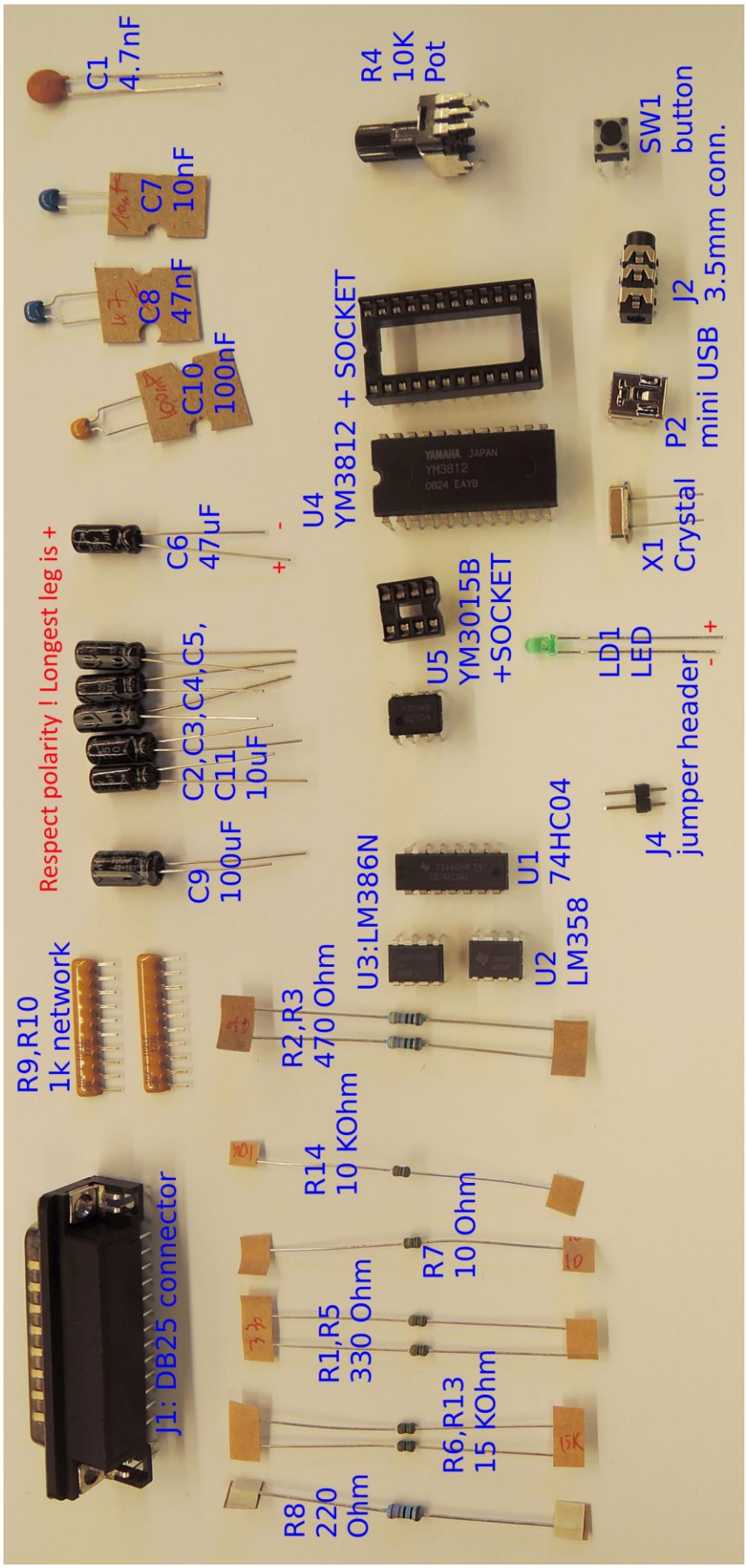
After approx. 40 minutes of soldering pleasure, you should end up with this beauty : The OPL2LPT !



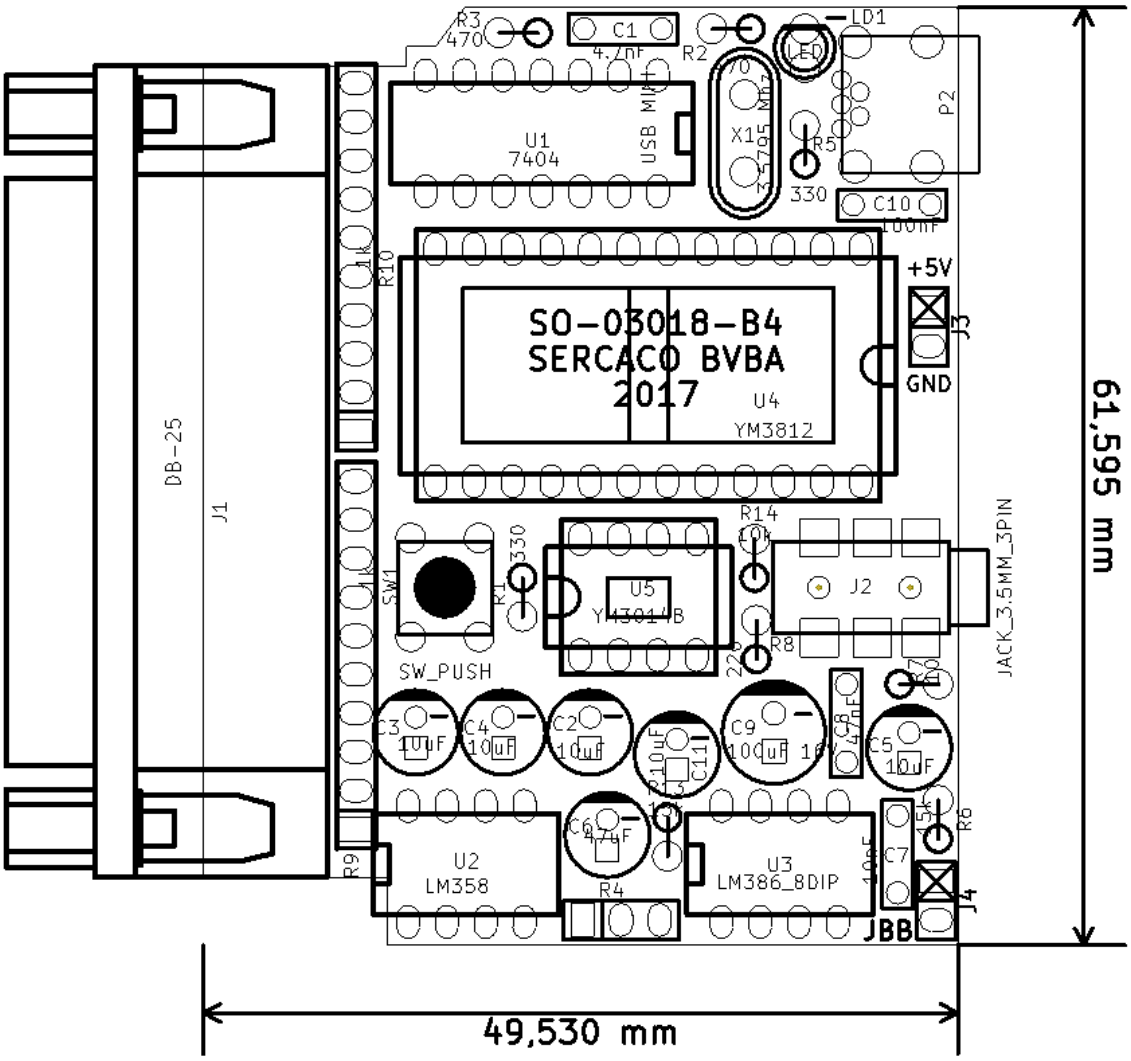
Parts list

1	C1 -	4.7nF	: cnp_7.5mm_disc
2	C2 -	10uF	: CP_5x11mm
3	C3 -	10uF	: CP_5x11mm
4	C4 -	10uF	: CP_5x11mm
5	C5 -	10uF	: CP_5x11mm
6	C6 -	47uF	: CP_5x11mm
7	C7 -	10nF	: cnp_7.5mm_disc
8	C8 -	47nF	: cnp_7.5mm_disc
9	C9 -	100uF 16V	: CP_6.3x11mm
10	C10 -	100nF	: cnp_7.5mm_disc
11	C11 -	10uF	: CP_5x11mm
12	J1 -	DB-25	: DB_25M
13	J2 -	JACK_3.5MM_3PIN	: PJ_JACK_3.5MM_3PIN_TH
14	J3 -	NOT ASSEMBLED	: pin_strip_2
15	J4 -	BASS BOOST JMP	: pin_strip_2
16	LD1 -	LED	: led_3mm_green
17	P2 -	USB MINI	: MiniUSB_through
18	R1 -	330	: rc03_vert
19	R2 -	470	: rc03_vert
20	R3 -	470	: rc03_vert
21	R4 -	10k pot linear	: pin_strip_3
22	R5 -	330	: rc03_vert
23	R6 -	15k	: rc03_vert
24	R7 -	10	: rc03_vert
25	R8 -	220	: rc03_vert
26	R9 -	1k	: r-sil_10
27	R10 -	1k	: r-sil_10
28	R13 -	15k	: rc03_vert
29	R14 -	10k	: rc03_vert
30	SW1 -	SW_PUSH	: PCB_PUSH
31	U1 -	7404	: dil_14-300
32	U2 -	LM358	: dil_8-300
33	U3 -	LM386_8DIP	: dil_8-300
34	U4 -	YM3812	: dil_24-600_socket
35	U5 -	YM3014B	: dil_8-300_socket
36	X1 -	3.5795 Mhz	: crystal_hc-49s

Component identification

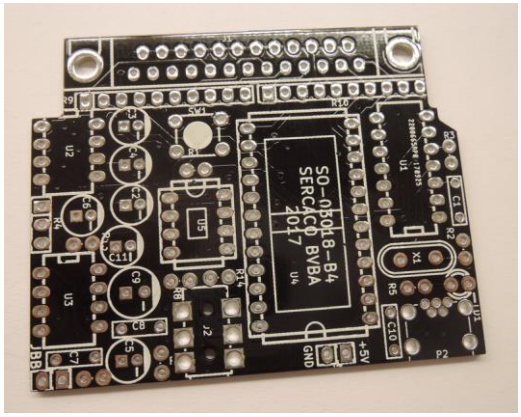


Component placement

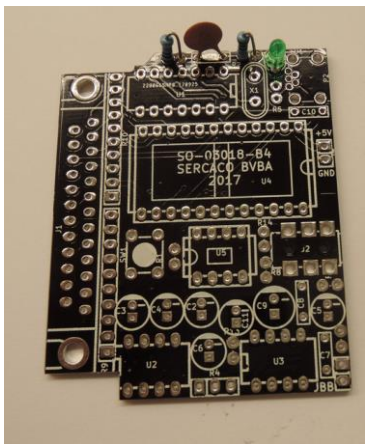


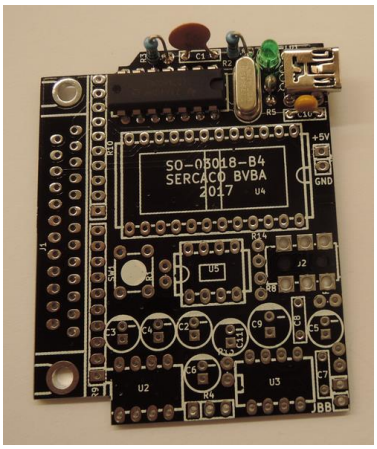
For LD1, C2,C3,C4,C5, C6, C9, C11 : take care to respect the polarity.
The negative side is marked with - on the PCB.

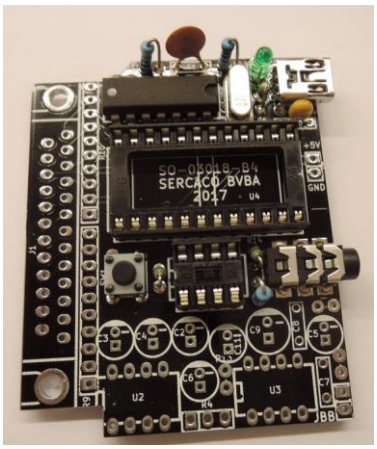
Soldering steps

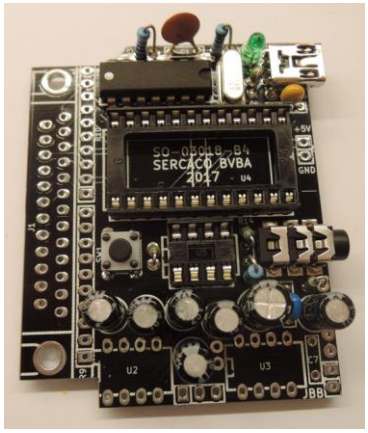


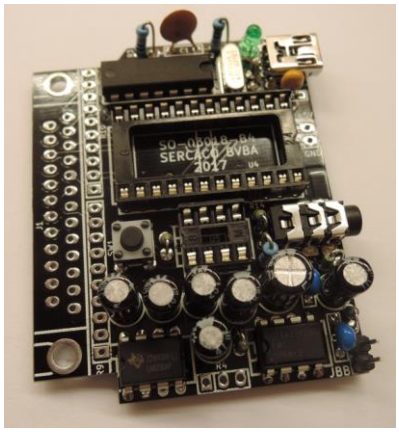
Starting from the blank PCB, gradually populate the board with components.



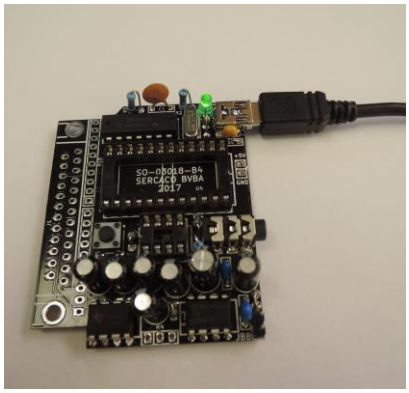
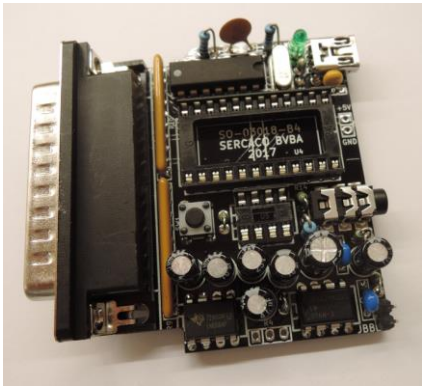




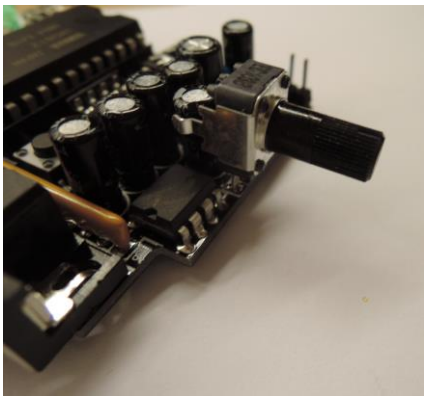
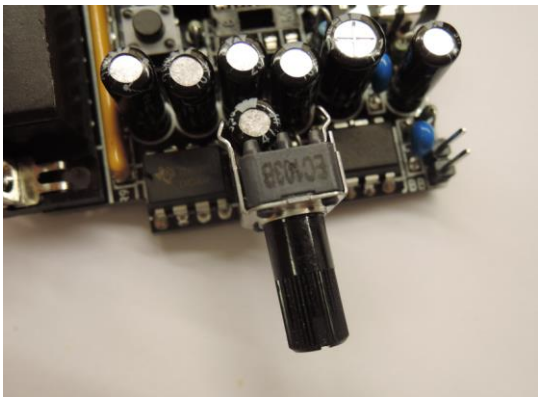




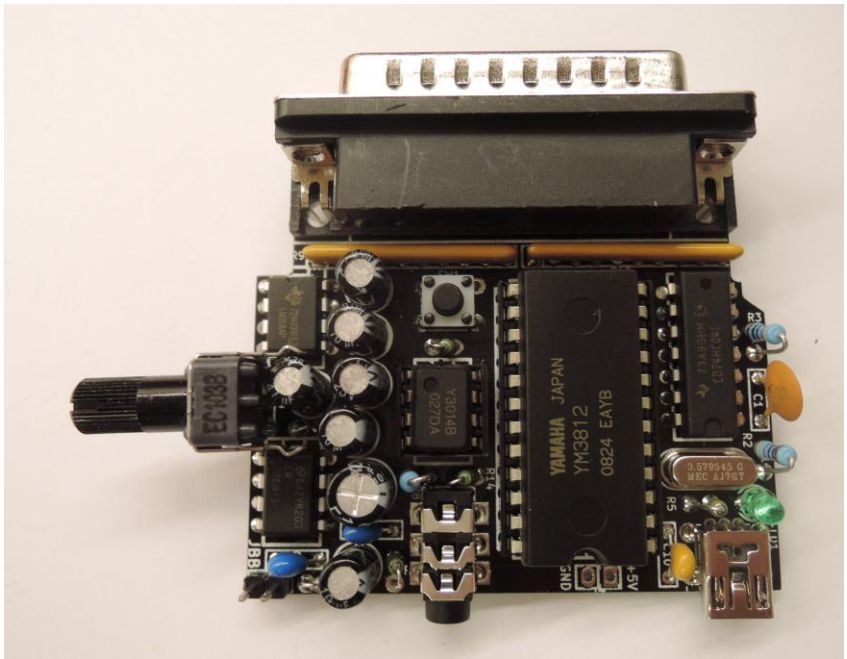
At this stage you can already test if the 5V power works fine : if there are no shorts , the green led should burn when you plug the board on an usb cable to your 5V power source. If this works, add the remaining components.

For the potentiometer, straighten the legs, and mount it as shown here :

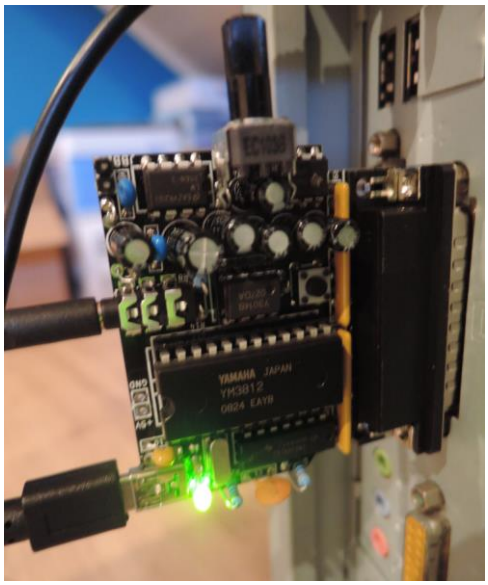
Now also place the Yamaha chips in the sockets. Make sure you insert them with the right orientation. If all went well, your board should look like this :



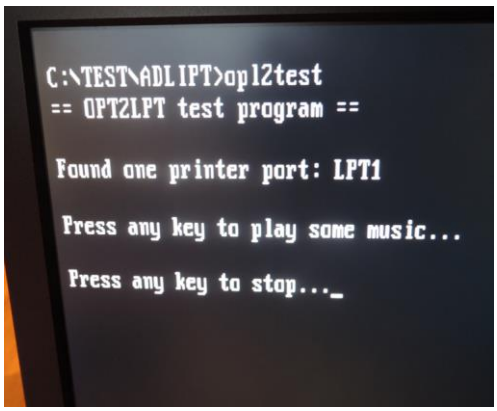
Testing the board

Plug your board in your DOS pc's parallel port. Connect a 5V power source (this could be a battery pack, an usb port, a ps/2 to usb converter, …) to the board, using a mini USB cable.

Also connect your speakers or headphones to the 3.5mm jack.



Now using the test program 'opl2test', you should hear some music.
Adjust the potentiometer until you hear a suitable volume.



This concludes the soldering guide.

For more tips and tricks using the OPL2LPT with games, check the web site and the vogons forum.