ANTUMBRA

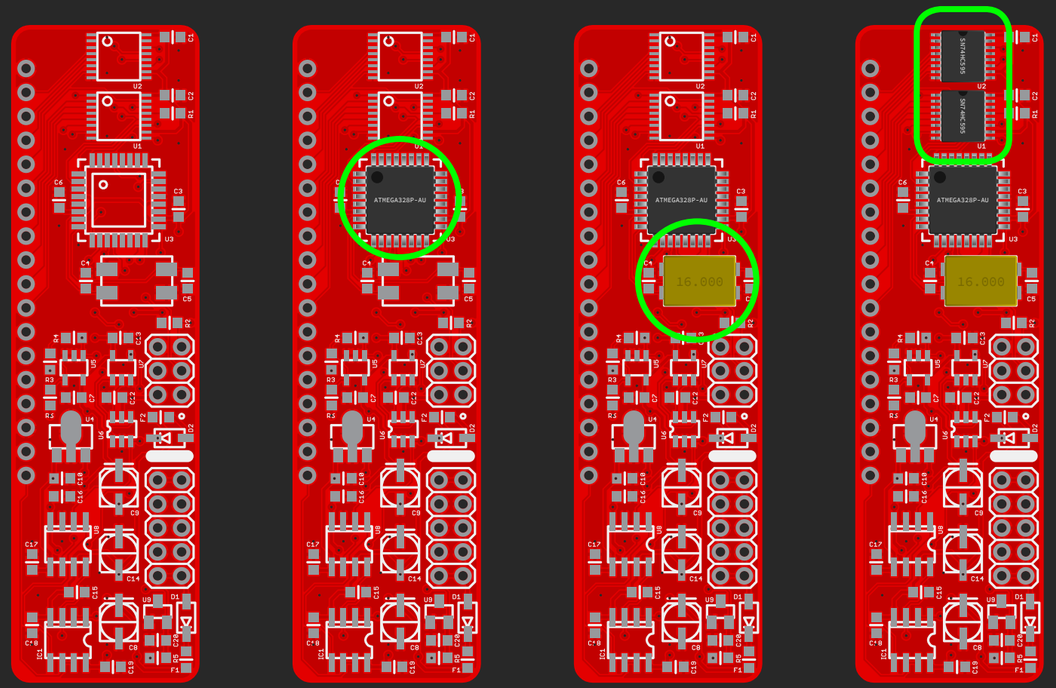
TUNE

BUILDING INSTRUCTIONS

PCB V1.1

01. BUILD NOTES

Before you start building look through the build manual so that you'll be familiar with the building process and you won't run into any surprises! ☺



00 01 02 03

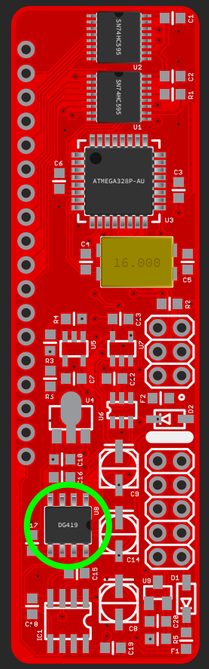
02. BUILD

00. Orient the PCB as seen on the left

01. Solder the ATMEGA328P-AU
(Check it's orientation)

02. Solder the crystal oscillator

03. Solder the two SN74HC595s
(Check their orientation)



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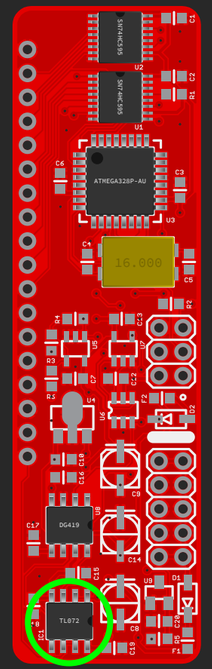

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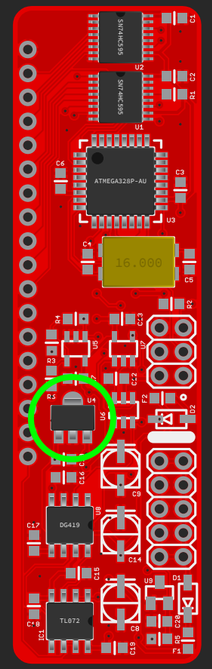

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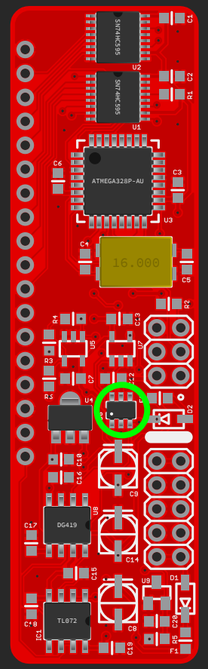


07

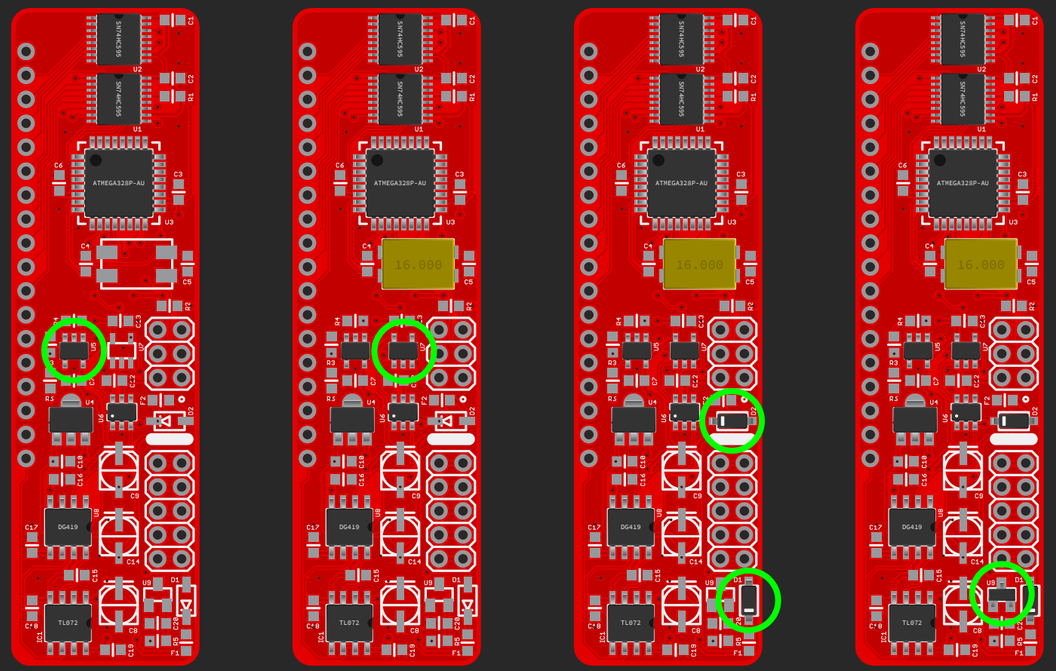
02. BUILD

04. Solder the DG419 switch IC
(Check it's orientation)

05. Solder the TL072 op-amp
(Check it's orientation)

06. Solder the 78L05 voltage regulator

07. Solder the SN74LVC2G14 dual Schmitt trigger
(Check it's orientation)



08 09 10 11

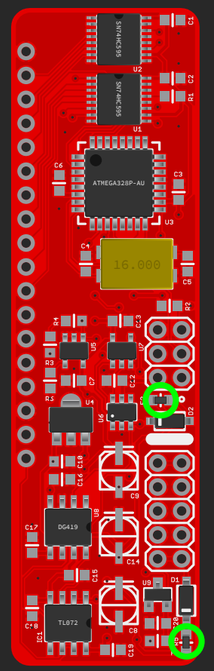
02. BUILD

08. Solder the MCP6001 single op-amp

09. Solder the SN74AUP1G79 single flip-flop

10. Solder the two 1n5819 diodes
    (Check their orientation)

11. Solder the LM4040 5V voltage reference



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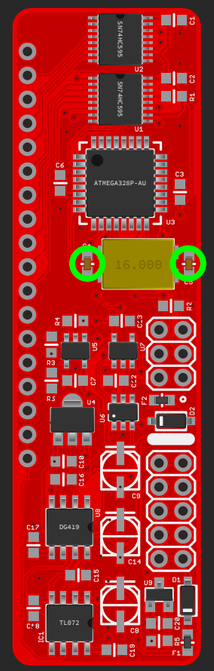

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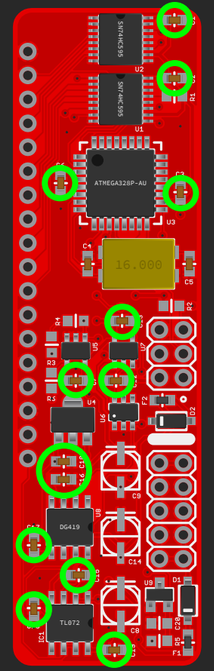

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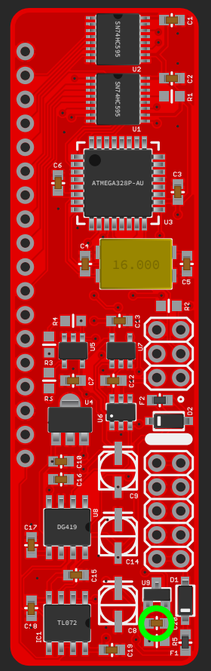
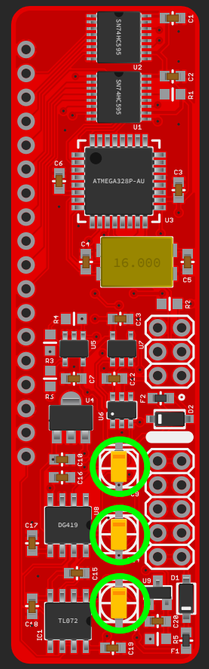


15

02. BUILD

12. Solder the two ferrite beads
13. Solder the two 22pF capacitors
14. Solder the 13x 100nF capacitors
15. Solder the single 470nF capacitor



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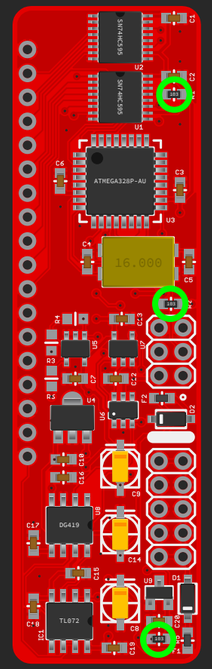

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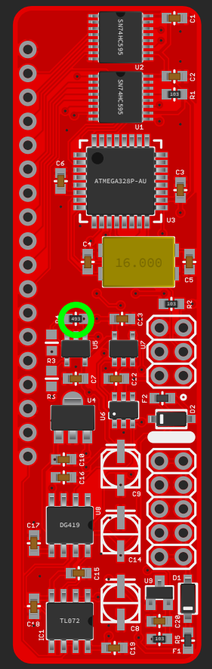

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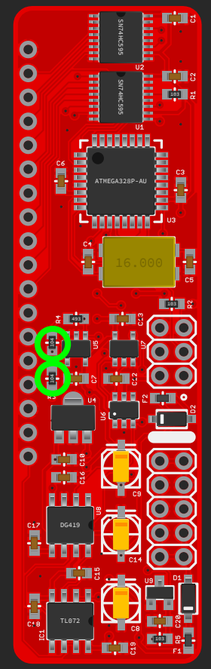

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02. BUILD

16. Solder the three 10uF tantalum capacitors (Check their orientation)

17. Solder the three 10k resistors

18. Solder the single 49.9k resistor

19. Solder two 100k resistors

02. BUILD

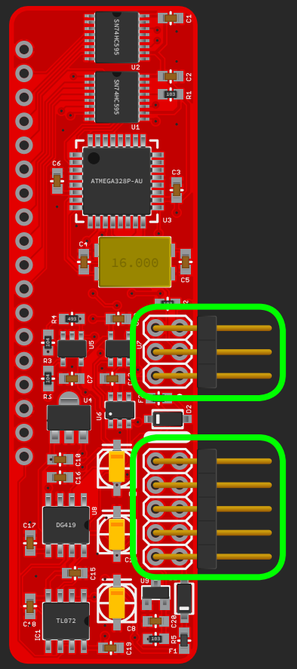
20. Solder the 2x3 and 2x5 pin right angle headers
    (Make sure they are nice and parallel to the board)

You are done with the main board!

21. Orient the PCB like this

22. Solder the single 360R resistor
    (This is for the jack LEDs, this is optional and it's value can be changed depending on the LEDs you are using)

23. Solder the 12x 470R resistors



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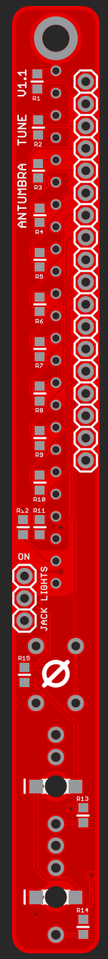

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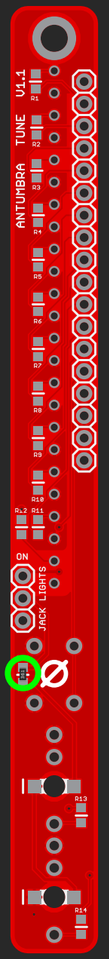

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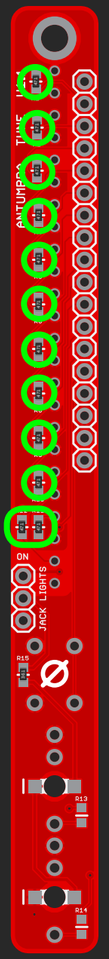

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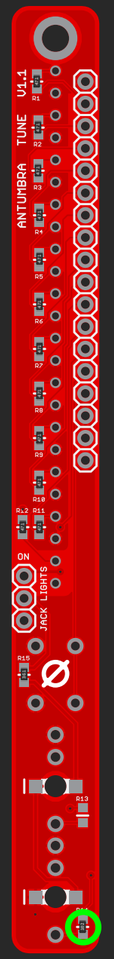

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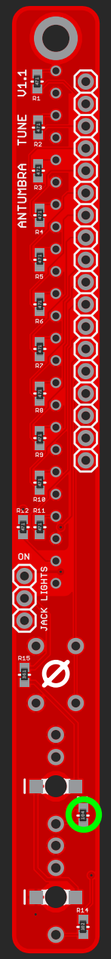

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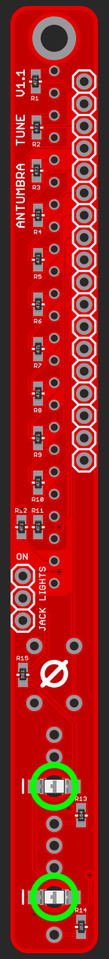

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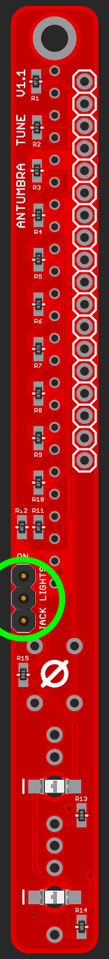


27

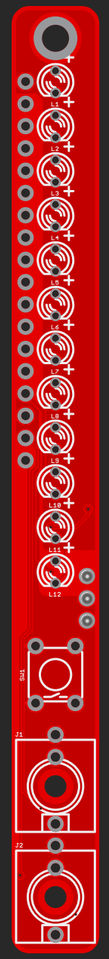
02. BUILD

24. Solder the single 1k resistor

25. Solder the single 100k resistor

26. Solder the two SMD LEDs
    (These are optional)

27. Solder the 1x3 pin header
    (This is optional)



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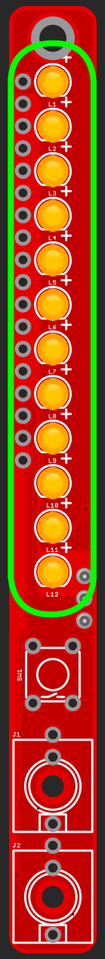

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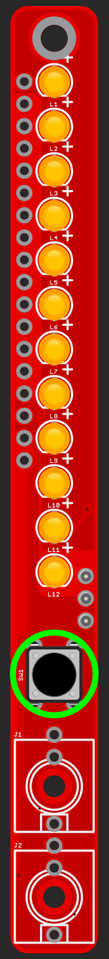

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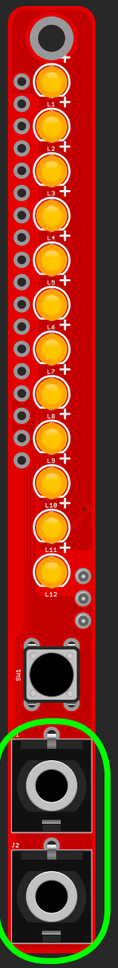


31

02. BUILD

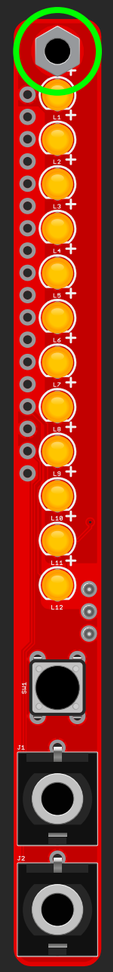
28. Turn the PCB around

DO NOT SOLDER YET!

29. Place the 12xLEDs
    (Check their orientation, long leg goes into +)

30. Place the button and it's cap

31. Place the two jacks



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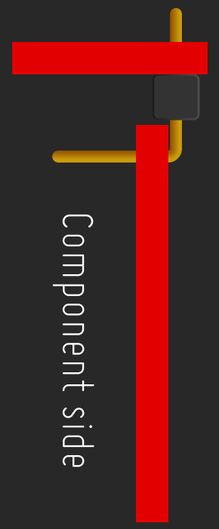


34

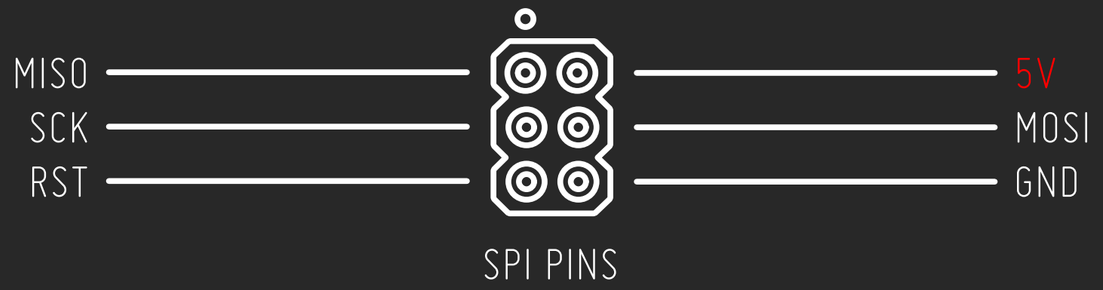
02. BUILD

32. Screw in the spacer from the bottom side

33. Now place the front panel on top, put the nuts on the jacks, align everything nicely, and screw in a screw from the front in the spacer as well. If you like how it looks, solder everything on the other side!

34. Now place the row of right angle header between the two boards as shown in the picture (top view).
Make sure that the boards are perpendicular to eachother, then solder on both boards. It helps to solder just one pin on each board first, adjust them, then solder the rest.

You are done with building! Congratulations! ☺



03. UPLOADING SOFTWARE

1. Download the firmware from the Antumbra website.

2. Connect your AVR ISP device to the 6 pin ISP header on the module. Pin 1 is marked with a dot.

3. Use an AVR programmer, like AVR ISP MKII with for example AVRDUDESS to upload the code.
   Fuse settings should be set to:
   L-fuse: 0xff ◦ H-fuse: 0xde ◦ E-fuse: 0x05

4. After you've uploaded the firmware with bootloader, connect the module to your power supply. If you were successful, you should see the welcome animation.

TUNE is designed by David Szebenyi under Antumbra.

www.antumbra.eu

Manual by David Szebenyi (www.aman.hu)