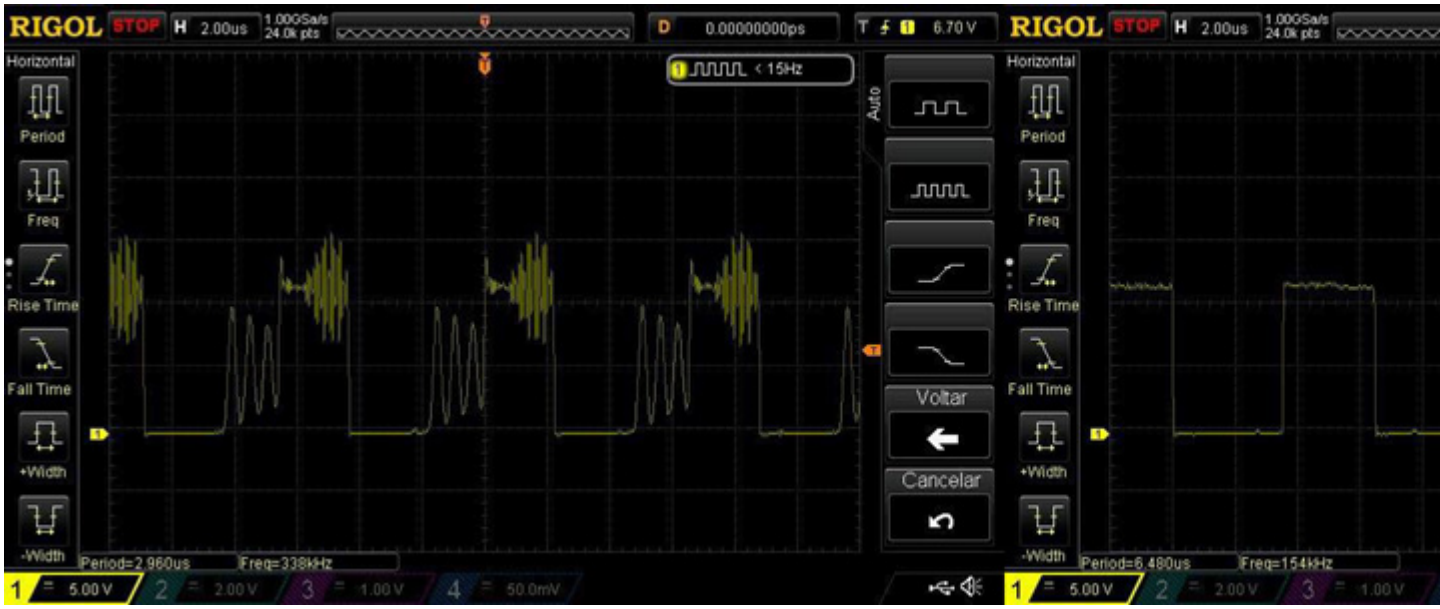
Next board 2A capacitor mod

February 10, 2018 Carlos Henrique Olifiers Off Happening, Hardware, Resources,

Everything you need to know to add a noise-filtering capacity to your 2A board.

The developer board version 2A, which is the board most users have, can have its performance improved for some — particularly people who are experiencing interference on video etc. This alteration can even improve HDMI compatibility with some TVs and monitors, thus is recommended to those who are skilled with a soldering iron.

In a nutshell, the Next 2A allows noise from any PSU connected to it to filter through its components. This interference may vary from no side effect at all (most users) to video noise to HDMI incompatibilities. In order to fix the problem, a capacitor must be soldered to the 2A board voltage input, thus eliminating interferences.

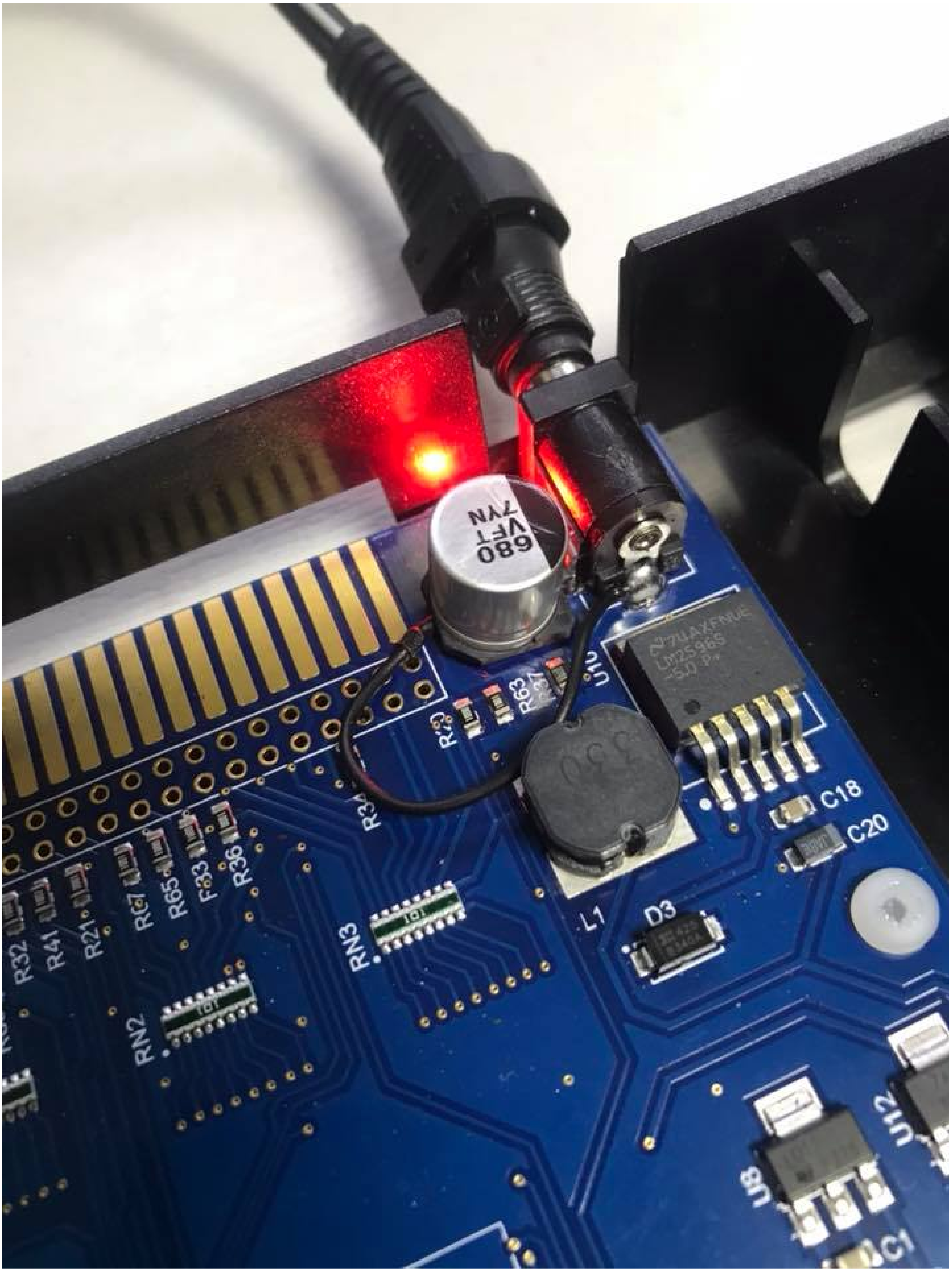


The Spectrum Next noise before and after the capacitor mod

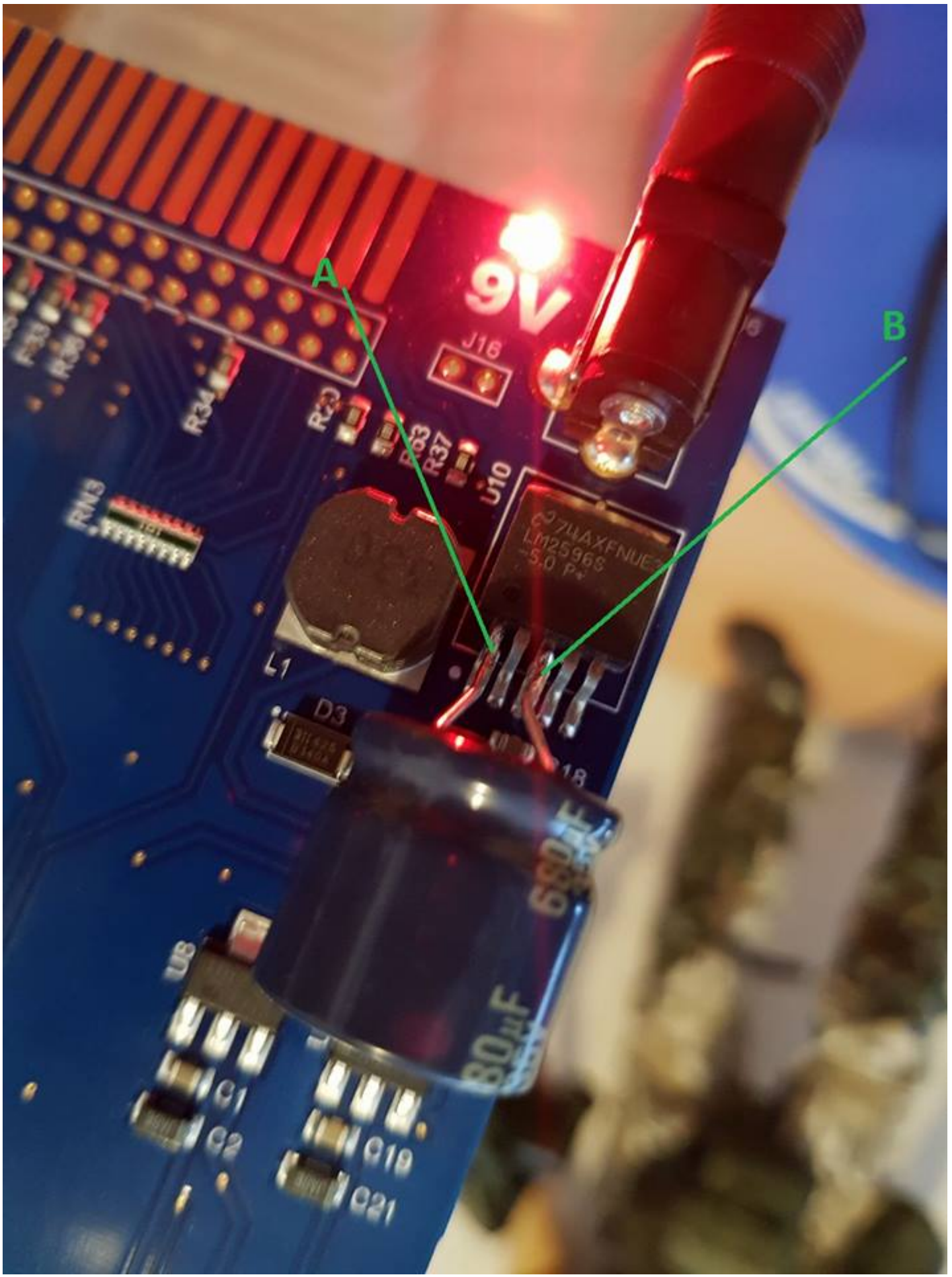
There are a wide range of capacitors that can be used, as long as they have polarity (+/-). A range of 100µF to 680µF, around 25V to 35V is ideal. The final Spectrum Next (version 2B) features this by default, and uses a 470µF 25V capacitor. Here are some links to purchase the capacitor:

Europe: https://www.digikey.co.uk/products/en?keywords=493-2194-2-ND
America: https://www.digikey.com/product-detail/en/nichicon/UWT1E471MNL1GS/493-2194-2-ND/589935

There are two places where the capacitor can be soldered: directly to the 9V connector on the top right corner of the board (labelled 9V) or on the voltage regulator right below the connector (labelled U10).


680
VFT
7YN
LM2596S
C18
C20
D3
L1
RN3
RN2
R32
R41
R21
R65
R36
R63
U10
U8
U12

The capacitor soldered to the 9V connector. The black notch indicates (-) polarity, thus soldered to the side of the connector, while the (+) leg of the capacitor goes in the middle of the connector. Photo by Jon Gratton (FB Next group).


A
B
9V
J16
R34
R23
R37
U10
RN3
L1
D3
C1
C2
C19
C21
680µF
80µF

The capacitor on the voltage regulator U10. A is (+) and B is (-). Photo by Adrian Cummings and annotations by Deon du Plessis, Next FB group.

Whatever the place you chose to solder the capacitor, it's **VERY IMPORTANT** to observe the polarity of the capacitor: it's negative (-) pole needs soldering to the negative of the 9V connector (on its side) or the middle leg of the voltage regulator U10 (B in the picture above). The positive (+) pole is soldered to the back/middle of the 9V connector or the left leg of the voltage regulator U10 (A on the picture above).

If you need help or tips on how to solder the capacitor, make sure to visit the Forums for an extensive discussion on this, courtesy of the awesome Next community!

Credits for getting this discussing going and the solution shared goes to Pokemon, from the FB group. Thanks, sir!

Credits for article image of capacitors by Eric Schrader from San Francisco, CA, United States – 12739s.