
Super SD System 3 FU-RGB Board Install v1

Before We Begin:

Disclaimers

This document covers the DIY installation of the Super SD System 3 FU-RGB board. Neither Voultar of Voultar LLC nor Mobius Strip Technologies can be held responsible for any damage that occurs from the improper installation of this device. It is expected that the person performing this installation has the necessary tools and knowledge to safely do so. If you are not comfortable with soldering, desoldering, hot air rework tools, electrical circuits, discharging capacitors, using basic hand tools, or working with electronic devices with high ElectroStatic Discharge sensitivity, please stop now and consult a qualified technician. You have been warned.

Expectations of This Bypass Board

With the FU-RGB bypass board video output is expected to be as good as or better than the current video output you currently see from the device. Hundreds of hours of testing with various systems, cables, power supplies, and device revisions were performed. That being said, any new revisions of the SSDS3 beyond Revision 3, the first revision to include a tantalum capacitor for audio buzz fix, have not been tested. Within revisions, there are also differences in components and possibly fabrication houses being used. One Rev2 device may perform better or worse than another Rev2 device.

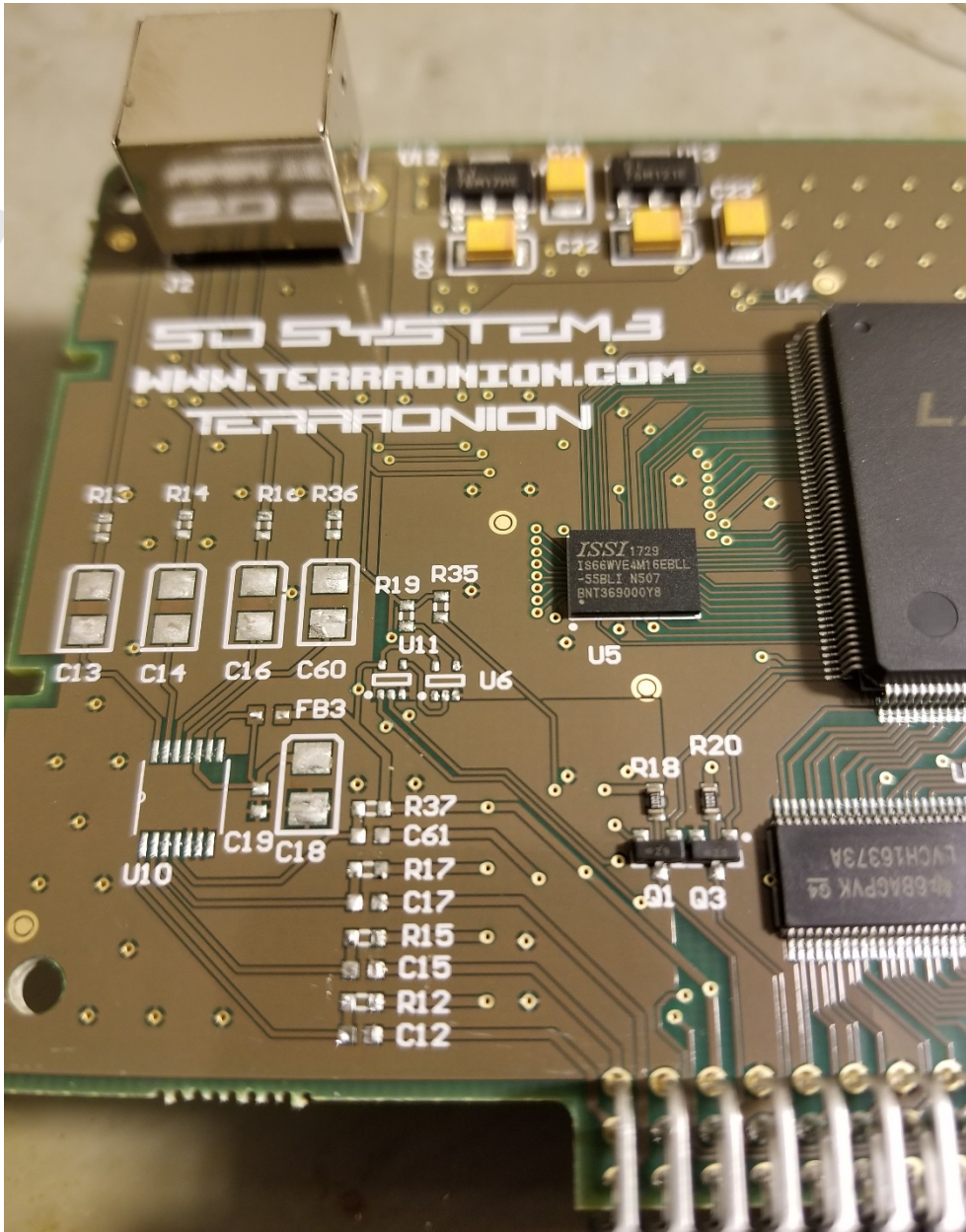
Important Notes

This board cannot fix jailbars. Jailbars are inherent in most if not all NEC consoles. These require internal modifications to your console and are not discussed in this guide. Internal RGB mods should be removed from your console if you intend to use the video output from the SSDS3. A single connection to an internal RGB mod, no matter how well built, WILL almost certainly cause added video noise. Other mods, may also cause visual noise. If you complete the install and still see noise, first step is to disable any internal console mods and disconnect them.

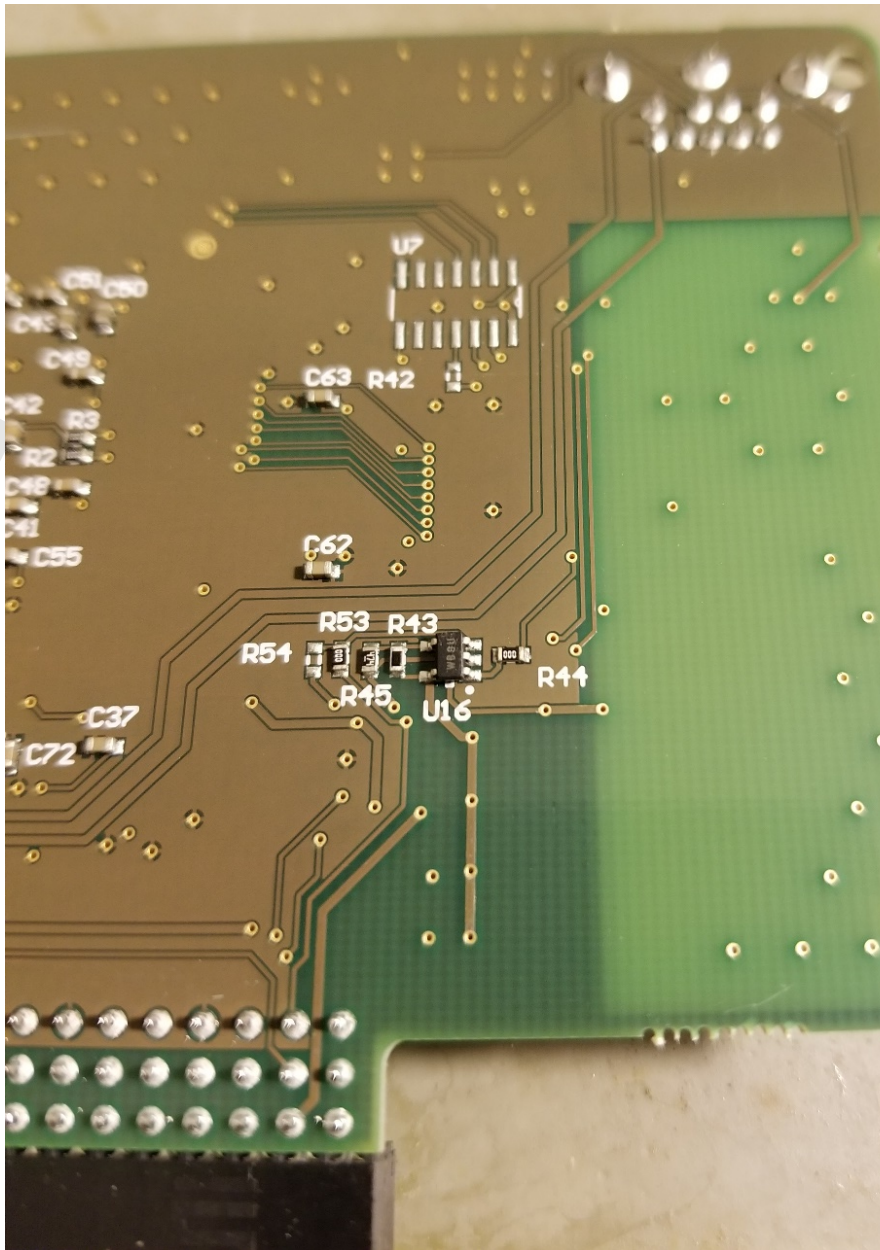
THIS MODIFICATION WILL VOID ANY "WARRANTY" YOU HAVE WITH YOUR DEVICE.

1. It is assumed that you have already removed the SSDS3 from your console at this point. It is also assumed that you have removed the SD card and video cable from the device. Lastly it is assumed that you are working in a static-free environment with the proper ESD protections in place. Failure to do so can result in the ARM processor being damaged beyond repair.
2. Disassembly of the SSDS3 is fairly simple. There are 4 philips head screws located on the bottom of the casing. One in each corner. Depending on whether you purchase from StoneAgeGamer or TerraOnion, you may need a #0/#1 or a #2 philips head to remove the screws. TerraOnion generally uses #2 screws and SAG generally uses #0/#1 screws.
3. With the screws removed flip the case back over and lift off the top. You can now lift the board straight up and out. If the back panel of your casing has small plastic tabs on it, as some do. Lift the back panel up and then lift the board up and out.
4. Now, you are going to want to ensure that wherever you are working is not sensitive to extremely high heat. Place the board flat on your bench and prepare the hot air rework station, I recommend circular motions and a temperature setting of 360F at about 40-50% fan speed. You will need to remove all of the components shown in red in the picture below. None of them can be left in place or it will degrade the signal quality. You may wish to cover other components in Kapton tape or a similar tool for heat protection. The ground pour for the board is large and will take a while to heat up. Additionally, the solder used is lead free, which generally has a higher melting point. Once the components are thoroughly heated they can be removed with tweezers.

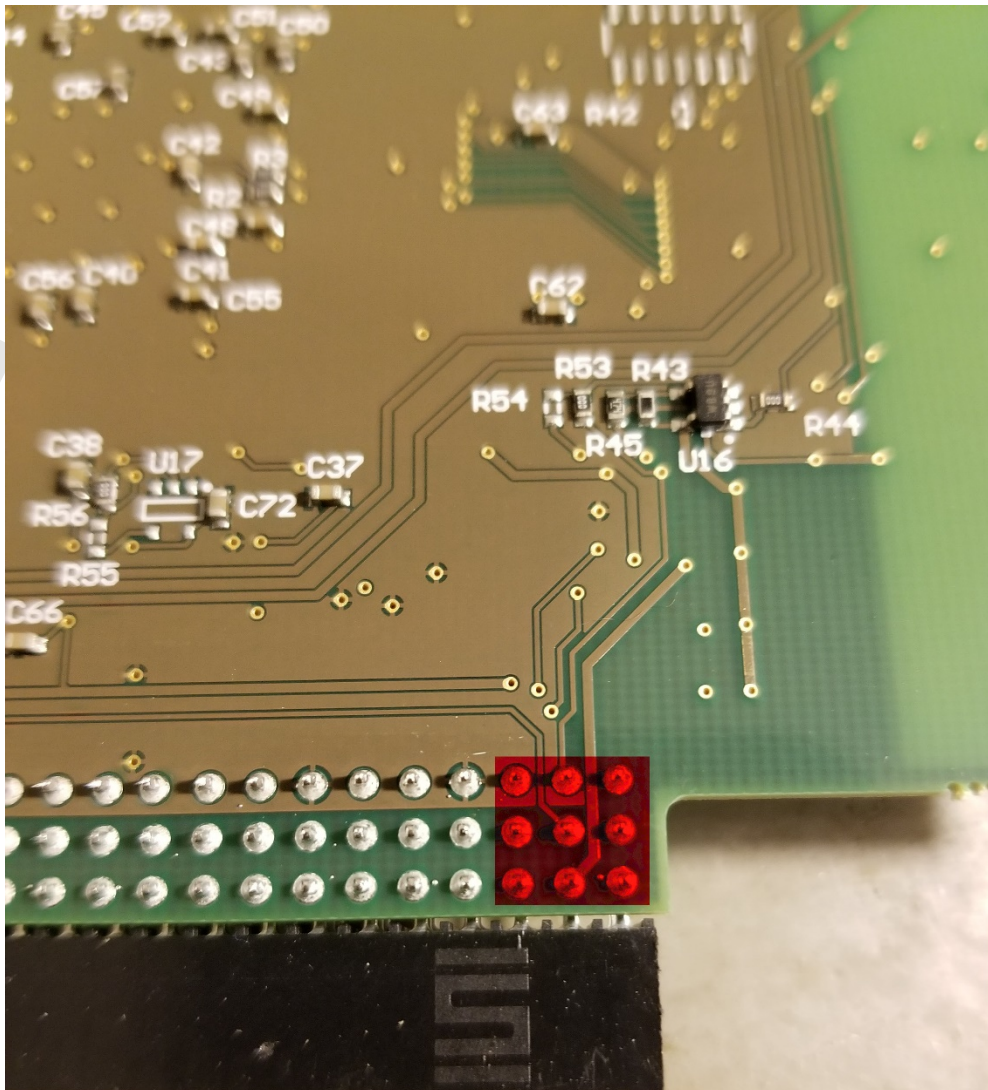
5. With all of the components now removed, it is recommend that you let the board cool down and clean up the area with 91% or higher isopropyl alcohol. You may wish to use desoldering braid/solder wick to remove the leftover solder on the pads. This is not necessary and more of a cosmetic choice.



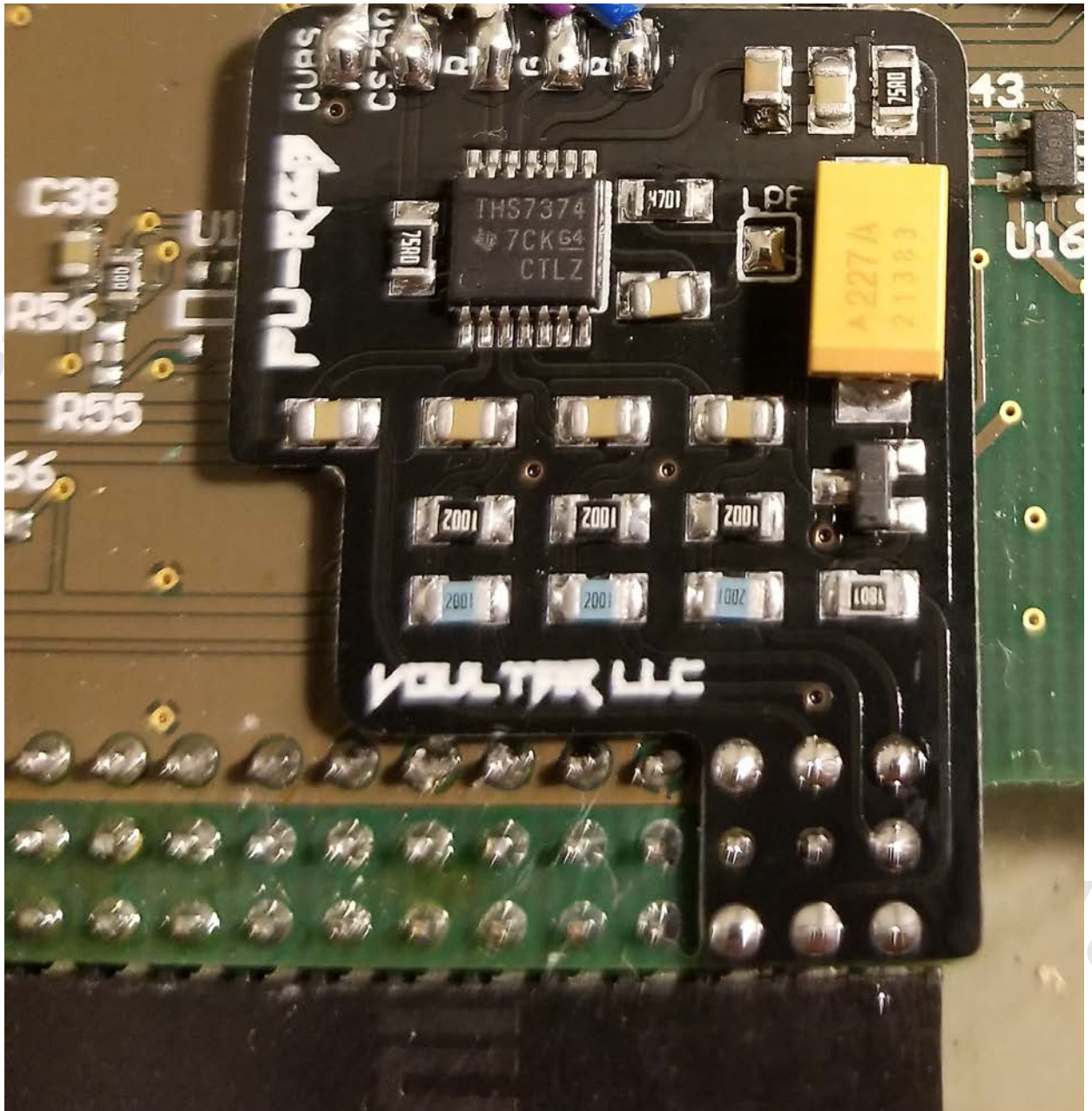
6. Now that the board has cooled sufficiently, flip it over. We will be working on the underside the remainder of the time.



7. With the board flipped over, place the FU-RGB board over the pins at the end on the right-hand side. It should fit snugly on the pins. The pins have been highlighted in red for your convenience.



8. Solder the FU-RGB board in place. This should be very quick. Ensure that you are making a good connection with the pins.



9. If you wish to set the Low Pass Filter to off, now is a good time to do so. Just remove the bridged solder points from the jumper labeled LPF. (It's recommended you leave this bridged for best results.)

10. Next we want to tin the output connections. Apply solder to each of the output pads.

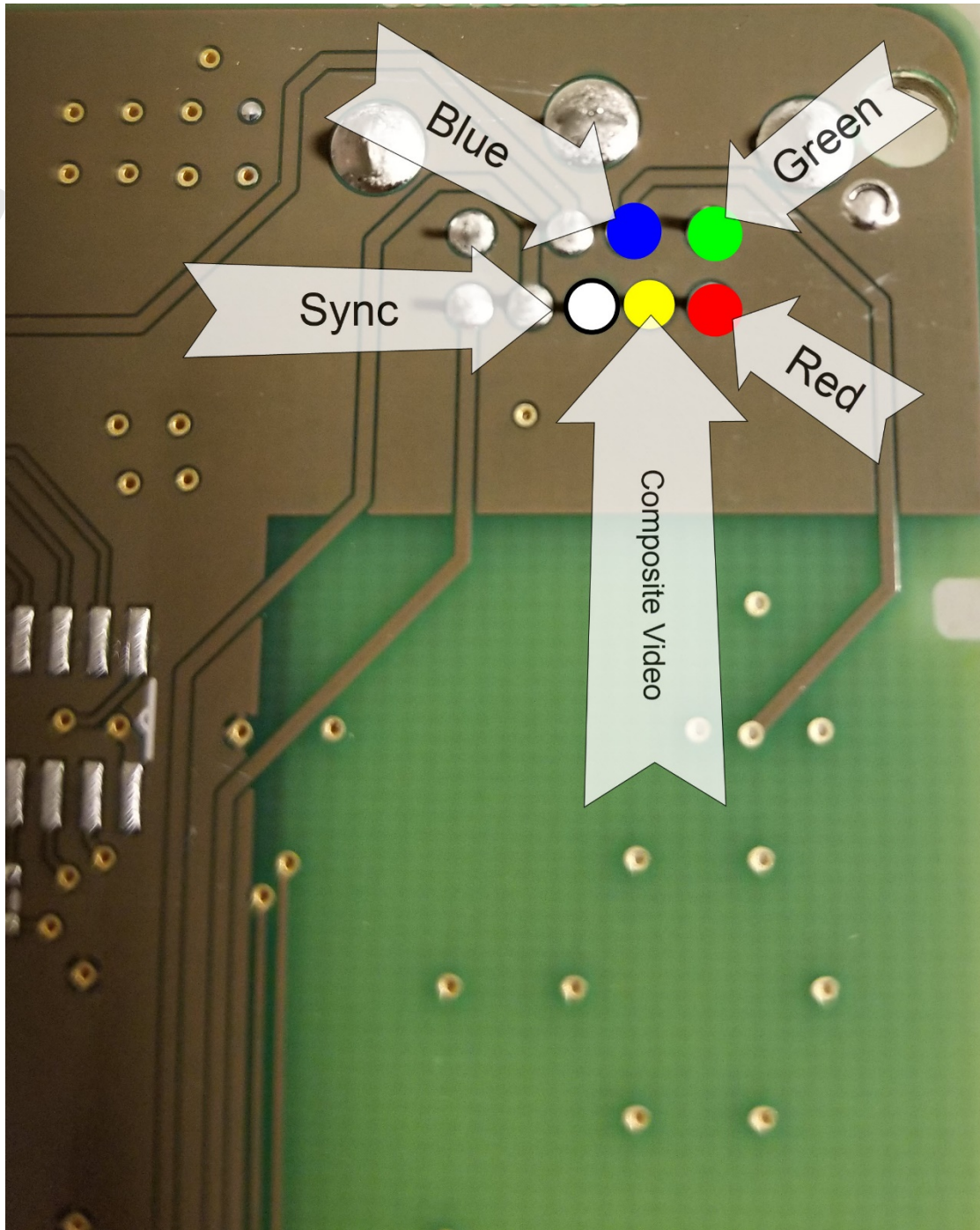
11. For the connections, it may be easier to make the connections on the FU-RGB first and then cut the wire to length for connecting to the miniDIN. This is up to your personal preference. However you do this, solder the wires to the output pads. Stranded 26 or 28awg ribbon cable is recommended for this. Be sure to tin the wire as well.

12. With the output pads connected, it is now time to route the wires to the miniDIN. For this bend the ribbon cable to the right and then when you reach the miniDIN horizontally. Bend the ribbon cable again and route it vertically to the miniDIN. Once you reach the miniDIN, give yourself a little extra slack past the top set of pins and cut the ribbon cable.

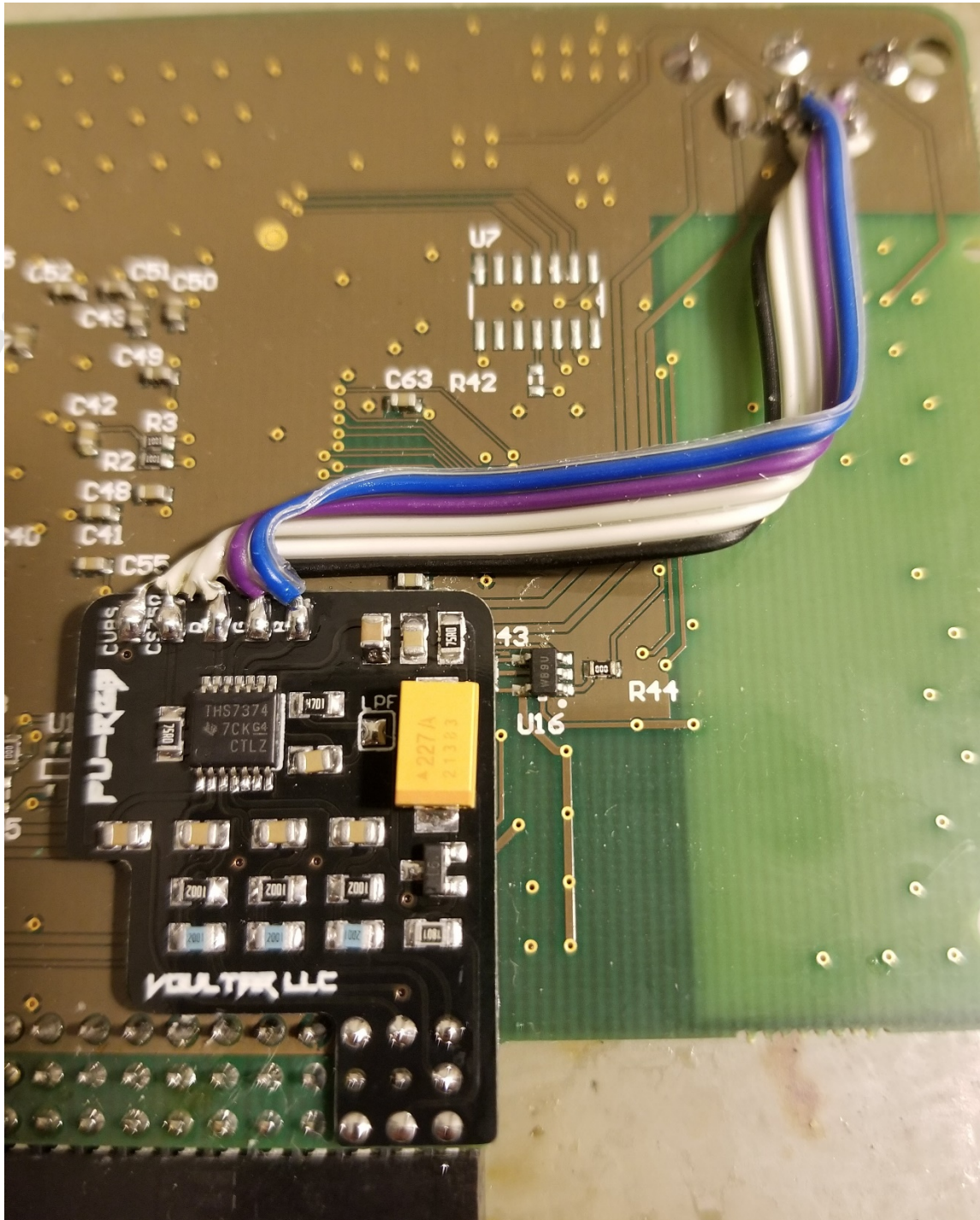


13. Now you will want to strip and tin the ribbon cable as well as tin all of the pins we will be connecting to.

14. Now it is a simple matter of connecting the ribbon cable wires to the miniDIN pins. Be careful not to bridge any pins. If you do, just go ahead and clean it up however you normally would.



15. With all of the output connections made, you are done soldering. Clean up any flux or residue and double-check your solder joints. The last part is to reassemble the SSDS3. No special steps are taken here.



Frequently Asked Questions

Q: Does this void my warranty on the SSDS3?

A: Yes. (If you actually have one.)

Q: Can a firmware update brick my SSDS3 with this installed?

A: No. The device is unaware that any video modification has been performed. Video signals are generated in the console and not by the device.

Q: I still see noise after installing the FU-RGB.

A: Some SSDS3 devices will still have visual noise after installing the FU-RGB. This cannot be avoided due to design flaws in the SSDS3 PCB.

Q: I said I still see noise in my video!

A: If you have any internal console modifications, you need to remove them and test again. Internal video mods will almost definitely cause visual noise due to the design flaws in the SSDS3 PCB. Other modification might cause issues depending on what was done and how it was hooked up.

Q: I removed all my mods and I still see noise.

A: There are very important considerations to make with this device.

1. You absolutely must use a power supply that is well built and provides ample power. Generic power supplies will cause noise in the video and possibly other issues.
2. Unshielded or poorly shielded video cables will also cause visual noise. Ensure you are purchasing quality shielded cables that are 75ohm impedance. RetroGamingCables, Retro-Access, and HD Retrovision are known for outstanding quality cables.
3. NEC consoles are prone to noise that cannot be addressed. The white PC Engine is known for serious noise generated from poor routing and signal isolation. The TurboGrafx 16 can sometimes develop visual noise from a missing or detached RF shield.
4. The device you are using for display can be affecting your experience. The Framemeister while a great product, does have known and documented visual noise that comes from its

analog to digital converter. This cannot be helped. The OSSC can have display quality issues with improper settings. PVM/BVM can experience visual noise from poor quality or not impedance matched BNC connectors. RCA to BNC adapters are notorious for this.

Q: Why am I having trouble maintaining sync? It keeps dropping or won't get a signal at all.

A: You may have a device in your chain that is not compatible with the 75ohm composite sync signal that is being generated. This is an easy fix if it is the case. Simply remove the 75ohm resistor next to the THS7374 amplifier. Then bridge the pads with solder. 99% of users will not experience this.

Q: My SSDS3 won't work at all after performing this mod. How are you going to fix it?

A: Every board is tested against live hardware and verified visually as well as on an oscilloscope for proper output before shipping. The first thing to do is verify your SD card is inserted and the access LED is working on your SSDS3. If the access LED is solid there is an issue reading the SD card or you have some other read issue. If the LED never comes on, either your connection is poor and the device should be removed, checked for bent pins, and reinserted. Or you may have a bridged connection or worse, the ARM processor could have been damaged. Any damage to your SSDS3 from performing this modification is solely your responsibility. This documentation is provided to assist you but is in no way a guarantee that you will not damage your console or device.