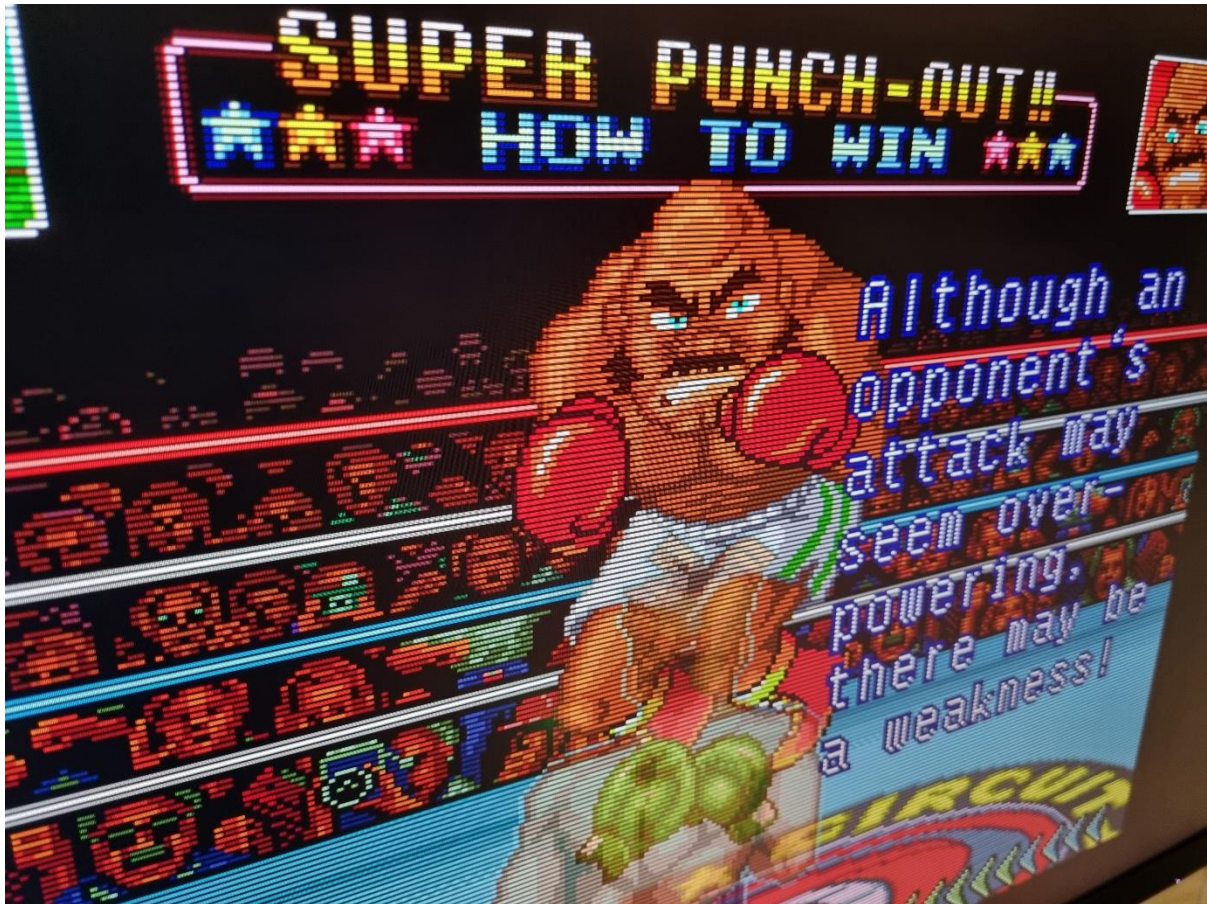# Phat SFC / SNES (NTSC) installation guide

OSSC 4:3 with scan-line emulation

Sync/ Cable Options:

These consoles send TTL C-Sync down pin 3 of the AV header (specifically for 'C-Sync cables' ONLY) by default. The sync attenuation resistor can be left off, both J1 and J2 can be left open.

Leave R12/ Q1 and other components around that area on the console mainboard.
This will allow the use of pre attenuated 75r C-Sync cables, or for TTL, straight through C-Sync cables.
If this is your choice, skip page 2.

You may choose to disable the default TTL C-Sync connection/ on-board buffering by disconnection of R12 on the SFC/ SNES Mainboard and patch C-Sync to the mod-board. This will give you more sync/ cable options – continue reading on Page 2.

Super-1 RGB bypass for 1-Chip SNES/SFC
V2.00 Final

These options only apply if you choose to run C-Sync to the mod-board and remove, at a minimum; R12 from the consoles mainboard.

Remove the following components to use pure 75r C-Sync or TTL C-Sync down the composite line (pure C-Sync on a Sync-Over- Composite cable).
R18 - (series resistor for composite output)
C50 – (coupling cap for composite output)

J2: Allows the use of a Sync-Over-Composite cable (all the cheap ones) for pure C-sync, TTL <u>or</u> 75r, though, you must remove the components mentioned above. ***THIS WILL KILL COMPOSITE VIDEO OUTPUT***.

In my case, I added the sync attenuation resistor in the SCART head on a Sync-Over-Composite cable to bring TTL level down within 75r C-Sync spec, hence, have bypassed this component/footprint with the bottom board jumper; **J1**.

Anywhere from a 330r to 470r resistor will bring TTL to a suitable 75r level). J1 and J2 are both closed on the picture.

To use a TTL C-Sync RGB Cable BUT send 75r C-Sync (no resistor in the SCART head on pin 20)
Install the sync attenuating resistor on the blank footprint, leave J2 open, leave J1 open.
You could close J2, giving you 2 cable options, BUT ONLY IF you've removed the above components.
Now a Sync-Over-Composite cable or TTL C-Sync cable will give you 75r C-Sync.
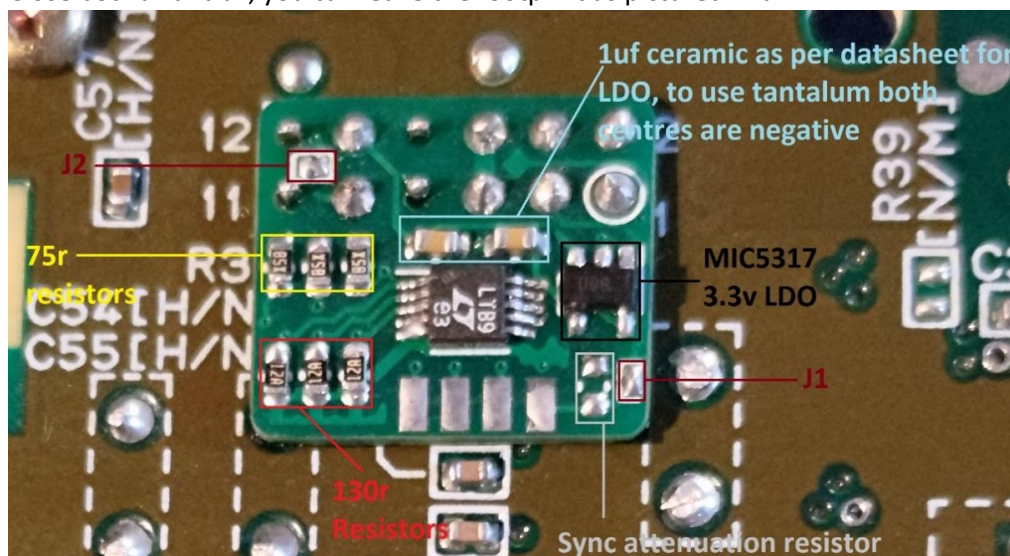
The following is the most common shielded after-market cable available:
To use a 75r C-Sync RGB Cable (Pre-TTL attenuated - resistor in the SCART head on pin 20)
Leave the the blank footprint as pictured... blank, ***it's in the cable***. Close J1.

To send TTL C-Sync down a Sync-Over-Composite cable
Close both J1 and J2, you can leave the footprint as pictured. Blank.

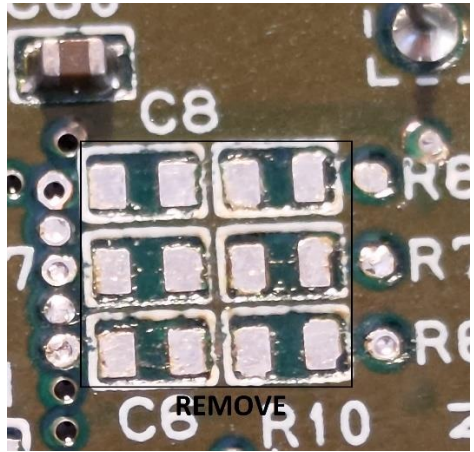# Super-1 RGB bypass for 1-Chip SNES/SFC
V2.00 Final

Board Installation

Factory Inputs

Factory attenuating resistors need to be removed as they are still active in circuit and form part of the video circuits attenuation.
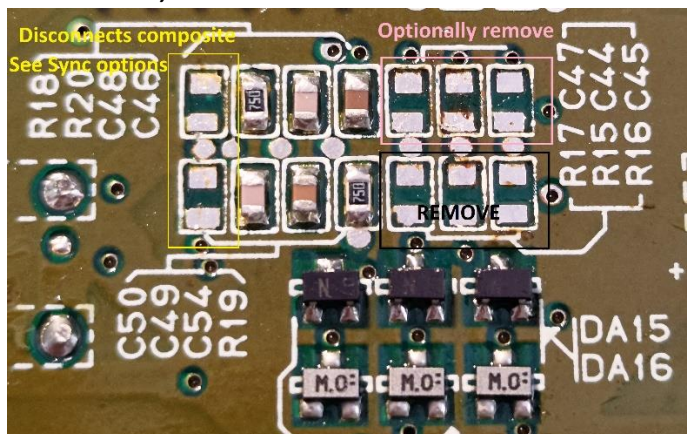
Remove R6, R7 & R8
Remove C6, C7 & C8 to avoid any unnecessary RGB backfeed into the factory encoders outputs.

Factory outputs

We also need to remove the factory output series resistors which disconnects the factory encoders RGB lines from the systems AV multi-out
Remove R15, R16 & R17

As a note, the factory attenuation resistors are 160r for phats. For JR systems, it looks like Nintendo planned on reducing the peak to peak a little on the RGB lines. They have 150r in place, but they didn't connect the outputs.

These systems also have 'puff' rated caps from factory RGB outputs to GND, It won't hurt to leave these in place – I've removed them.

Optionally remove C44,45,47

VajskiDs Super-1 RGB Bypass Install guide for SNES/ SFC JR (NTSC) V1.1


C-Sync jumper to mod-board (Skip this section if you skipped page 2)

Remove R12, optionally remove R9-R11 & Q1
Jumper from the left pad of the R12 footprint to the C-Sync pad on the mod-board

PLEASE NOTE: ON THIS INSTALLATION I HAVE 'RELIEVED THE FACTORY ENCODER OF ALL DUTIES'. It's COMPLETELY REMOVED – Taking a retirement holiday in a components drawer :P   ALL RELATED COMPONENTS ARE ALSO REMOVED. You don't need to go to this extent. This kills composite and S-video output.

When assembling these boards**, lay the LDO down quickly**. They die easily with heat and you won't get a 3.3v output. I've used soldering paste and a hot air re-work station for most of these components.
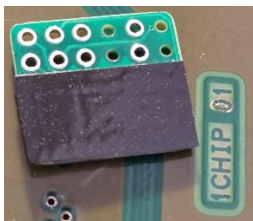

Insulate the rear of the mod-board with electrical tape or similar. This probably isn't required, but just to play it safe.

I like to go through all the pins hanging out on the bottom of the board and flush cut them. There are quite a few. These systems hold a lot of charge, and you're working near the main supply capacitors. Discharge the system by keeping it turned on after disconnecting it from the mains. A system sent from Japan and stored in a box for many weeks still had fully charged mains caps.

Sit the mod-board over the AV header, use your thumb nails on the left and right side to push them down hard over the pins. The bottom of the board should come up a little. Flux and solder away.

Super-1 RGB bypass for 1-Chip SNES/SFC
V2.00 Final
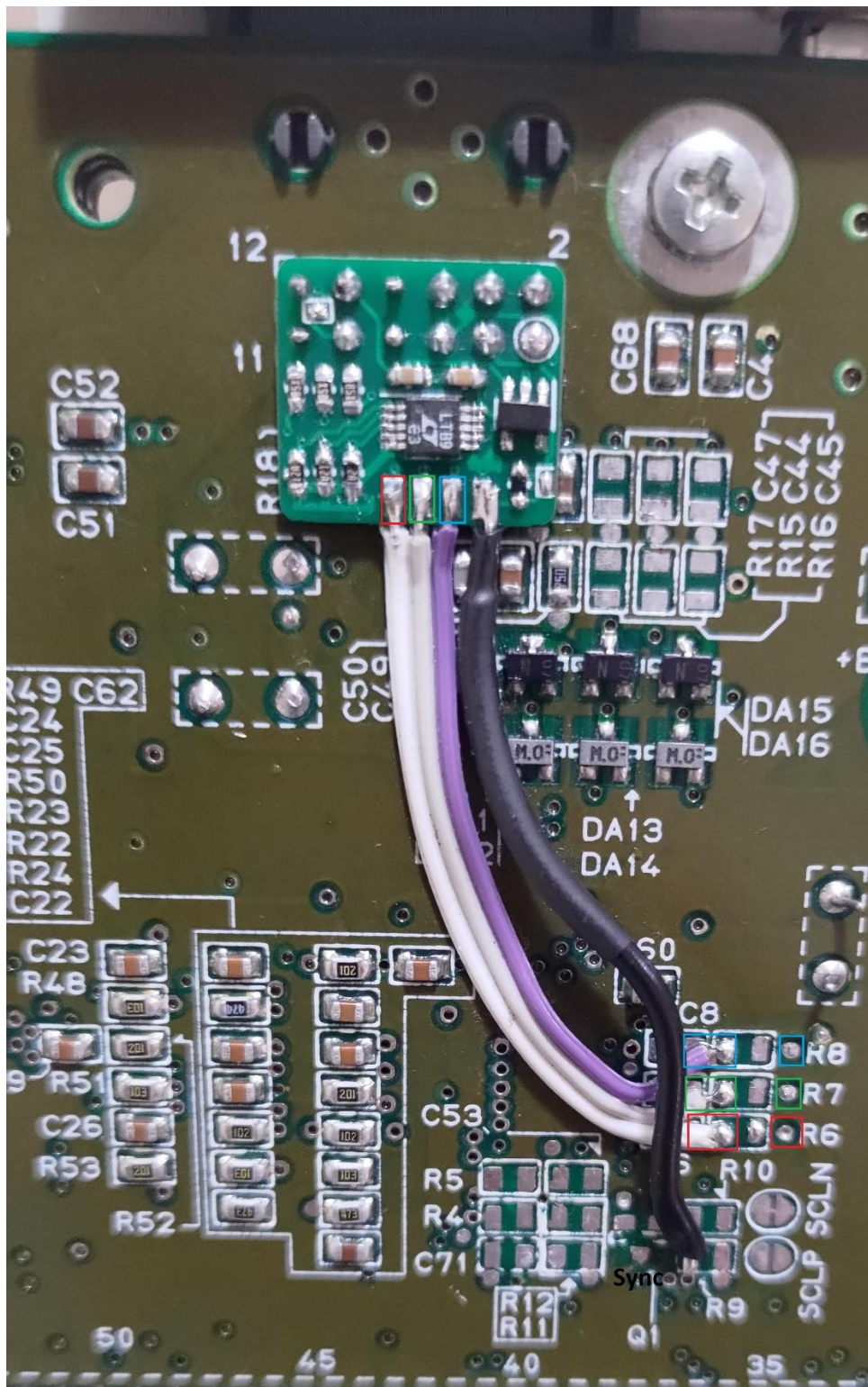
Red: L/H side of R6 footprint, R/H Side of C6 or the via on the right of both
Green: L/H side of R7 footprint, R/H side of C7 or the via on the right of both
Blue: L/H side of R8 footprint, R/H side of C8 or the via on the right of both

These components form a video circuit, hence I recommend using 0.1% tolerance.