



ColecoVision DRAM to SRAM Converter NTSC Installation Guide



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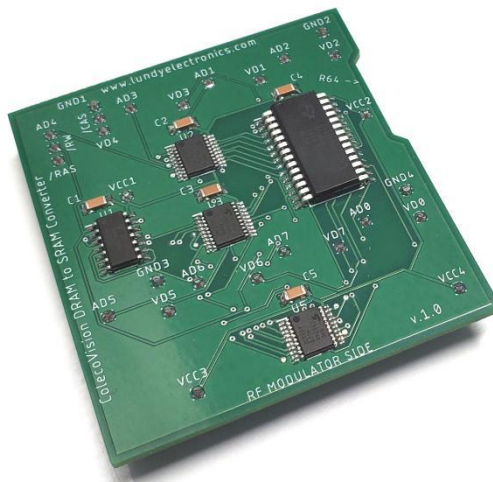
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Product overview

The Lundy Electronics ColecoVision **NTSC DRAM to SRAM Converter PCB mod** is the first VRAM conversion of its kind designed for the ColecoVision. This mod requires the user to have the required equipment and knowledge to safely solder and desolder components from their ColecoVision PCB and the necessary skills to read ColecoVision schematics if problems arise from damage to traces performing this mod. This document does not explain how to disassemble or reassemble the ColecoVision which can be found easily online.

What's included

- Populated DRAM to SRAM Conversion PCB



Tools required

- Desoldering iron
- Soldering iron
- Multimeter if troubleshooting is needed

How does it work?

The Lundy Electronics ColecoVision **NTSC DRAM to SRAM Converter PCB mod** uses modern, readily available components to replace original, obsolete DRAM. The added benefit of this mod is that it also removes the inefficient need of +12v and -5v required by the original DRAM. All the original DRAM, associated decoupling capacitors, and power inductors are completely removed from the system. The new SRAM Conversion PCB then installs where the original DRAM was located, and specific required pins are then soldered in place on the PCB. The Converter PCB only requires 27 total solder pins versus the original 160 total DRAM, associated decoupling capacitors, and inductor solder joints.

This product is designed to be soldered directly to the ColecoVision PCB without the use of any sockets.

Installation instructions

Note: Your NTSC DRAM to SRAM Converter PCB has been carefully tested by Lundy Electronics which includes visual inspection under a microscope, full testing in ColecoVision console, heat stress testing, and tap/vibration testing to insure no faulty solder joints or issues found. It is guaranteed that this product is fully operational, and Lundy Electronics is not responsible for damages caused by static discharge, improper handling, or damage from desoldering and soldering.

With the ColecoVision PCB completely removed from the case, perform the following steps.

Step One

Desolder and remove all associated decoupling capacitors, inductors, and DRAM. Below is a listing in order on the PCB for easier reference.

- Inductors: L2 and L3 (See **Figure 1**.)
- Decoupling capacitors: C32, C37, C40, C43, C21, C24, C27, C30, C22, C28, C31, C45, C26, and C44. (See **Figure 2**.)
- DRAM: U17, U10, U14, U12, U15, U13, U11, and U16 (See **Figure 2**.)
- Other considerations: The L9 inductor may have to be turned for extra room. Coleco has soldered L9 in either direction with no standard, and some units will require turning L9 where the hump side now faces the top edge of the PCB. (See **Figure 2** for proper direction.)



Figure 1

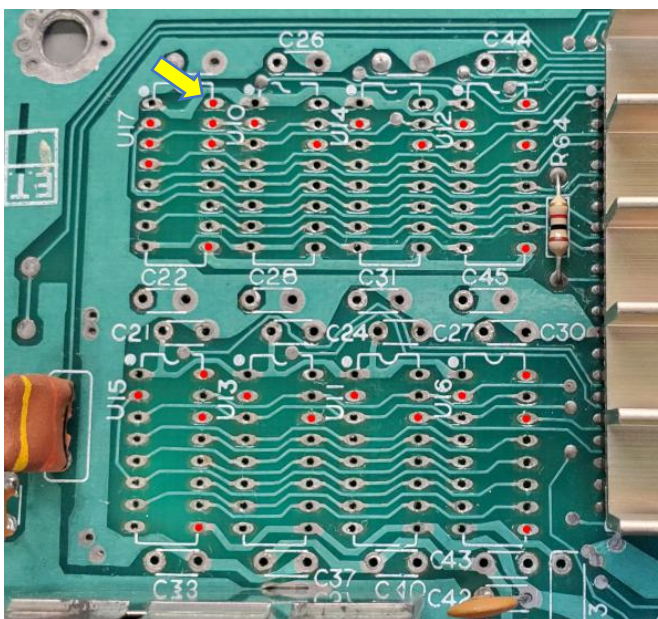


Figure 2

Step Two

Inspect desoldering work performed and repair any visual issues found or take notes at this point to address later if bodge/repair wires are needed after the new NTSC DRAM to SRAM converter board is installed. Verify all solder is fully removed from solder pads shown in red in **Figure 2** to ensure room for pins later. Note: Redundant parallel signals are not used by the new SRAM Converter mod PCB and may not even have to be addressed if the break is after where the signal is being tapped for the new PCB. See troubleshooting section for diagnosing broken traces if needed.

Step Three

Start the process of installing your new SRAM Converter mod PCB by aligning GND1 pin (above /CAS pin on the top side of the PCB) into the upper right Pin 16 of U17 solder pad hole as the reference of properly aligning the PCB. See arrow in **Figure 2**. Carefully and slowly lower the PCB in place. Do not to rush this process. It may be necessary to wiggle the PCB slightly if any pins



are ever so slightly off as you work them all in place as you carefully lowered it. If for some reason a pin will not align, bend it slightly to seat. Lower the PCB as parallel as possible with the ColecoVision PCB to avoid bending pins and making the installation more difficult.

Step Four

Once the Converter PCB is seated fully in place, carefully rotate the entire ColecoVision PCB and verify the board is still fully seated all the way down. Carefully solder all 27 pins in place to the corresponding original DRAM solder pads. Your new **NTSC DRAM to SRAM Converter** mod PCB is now installed and ready for testing.

Testing

Place the ColecoVision PCB in the case without any RF tins, connect the power supply with the power switch in the OFF position, and connect audio and video using your unit's configuration. Power on the display and ColecoVision unit and verify the standard "TURN GAME OFF BEFORE INSERTING CARTRIDGE OR EXPANSION MODULE" is displayed without any graphical glitches or issues. If it correctly displays the message cleanly, then congratulations, your new SRAM board is now operational. Enjoy! If you are experiencing display issues, see troubleshooting section below.

Troubleshooting

To fully troubleshoot any issues, use the following checklist to verify each signal used by the SRAM PCB to the corresponding VDP IC pin number to find any broken traces to repair. It is assumed the installer understands proper pin numbering scheme of DIP IC packages.

The following checks are done from the top side of the ColecoVision PCB and in order of SRAM PCB top to bottom.

SRAM PCB	VDP (U9)
[] GND1,2,3,4	Pin-12 (System Ground)
[] VCC1,2,3,4	Pin-33 (System +5v)
[] AD4	Pin-6
[] /CAS	Pin-2
[] AD3	Pin-7
[] AD1	Pin-9
[] AD2	Pin-8
[] /RW	Pin-11
[] VD4	Pin-28
[] VD3	Pin-29

Rev F. All specifications and included hardware are subject to change.

<http://www.lundyelectronics.com>

[] VD1	Pin-31
[] VD2	Pin-30
[] /RAS	Pin-1
[] AD5	Pin-5
[] AD6	Pin-4
[] AD7	Pin-3
[] AD0	Pin-10
[] VD5	Pin-27
[] VD6	Pin-26
[] VD7	Pin-25
[] VD0	Pin-32

Thank you for choosing Lundy Electronics, and we hope you enjoy your ColecoVision product.

