Hardware mods

C64U owners who change their device to change it and expand or modify its functions on the hardware level

Extra function buttons

Several people have added buttons to there C64U. They add (typically) a dedicated button for **Menu**, **Freeze** and **Reset**. These are listings of how different people have done that in several ways.

Membrane Switch buttons (Gavin H.)

- Post about this on Facebook with video of result
- Using the 3 button header for Reset, Menu and Freeze. To the left of the black FPGA board, there's a number of pinheaders. If you look in the manual, on the page 208/209, you can see one of them marked as item number 16 "utility buttons".
- **Parts list**
  - OTOTEC 3Pcs 3 Key Membrane Switch (Amazon UK)
    - the buttons. Look for 'membrane buttons'
  - ELEGOO Dupont cable extensions (Amazon UK)
    - DuPont extension (male to female), You need cable extensions to reach the headers and get outside the case
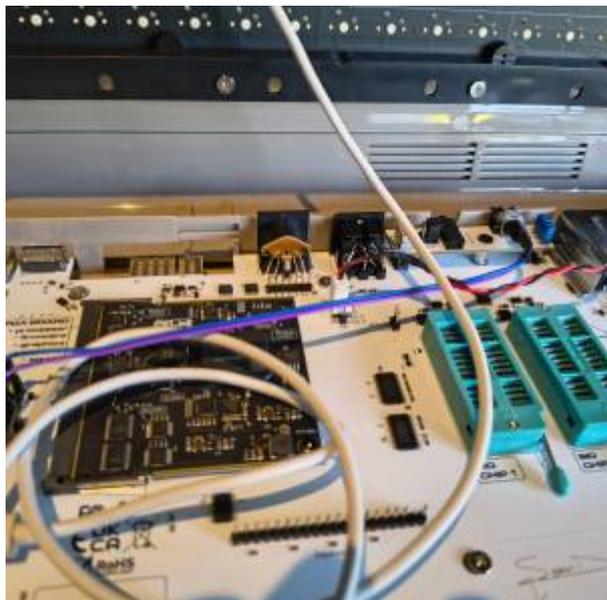
Right side buttons with 3D printer bracket (Jay W.)

- Post about this on Facebook
  - FB post about other but very similar modification with pictures
- This is a mod that will add the Menu / Freeze / Reset button to the side of your Commodore 64 Ultimate. It uses a custom 3D printer side bracket so that the original is not changed.
  - Info 3D model of the bracket used
- **Parts list:**
  - Momentary Push Button for Model Railway Hobby (Amazon US)
  - You will also need JST connector for the header pin on the motherboard. Just route the wires around how you wish.

Reset button in the back using H-L port (Dean W.)

- [Post about this on Facebook](#)
- Another RESET button mod ⬜ I just wanted a simple reset button, so I created a 3D printed support to go in the empty H-L hole in the case back to hold a small momentary switch (could set it to be a freeze or menu button too). - Note that the button may have to sit on a slight downward angle so as not to interfere with the top part of the case when closed. Just needs to be wired up to the GROUND and RIGHT pins on the "Button" header pins on the PCB.
  - https://www.thingiverse.com/thing:7269213 3D-print file
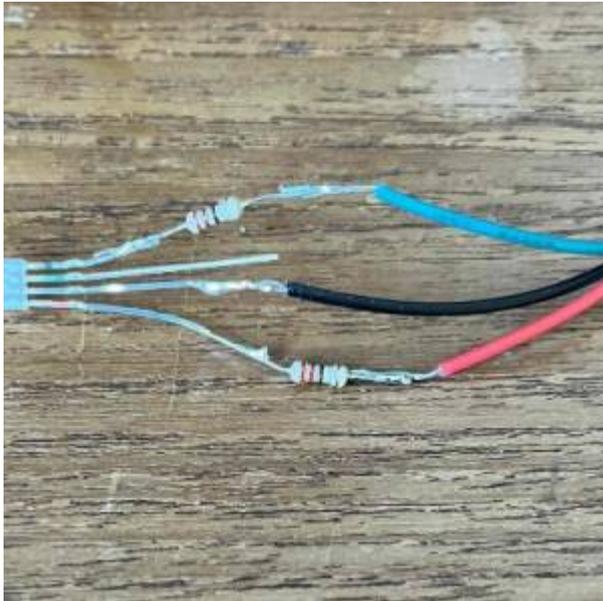
Power light modification

Dual color power/drive LED (Frank P.)

- [Post about this on Facebook](#)
- It is possible to replace the standard red power LED (basic beige edition) with a **dual color LED**. The C64U LED LIGHTNING menu has several options for the behaviour of the Power LED, like showing drive activity. The C64U board has 4 pins for the Power LED: LED 1, Ground, LED 2 and LED 3. In the default configuration it has a jumper cable with only two wires connected to the LED 1 and Ground pins. The current firmware only supports LED 1 & 2 at this time. You can choose several options for Output 1 & 2 in the menu.
- Ready made dual color power LED's are available online, like in these shops below.
    - [Corei64 dual round LED for the breadbin style case](#)
    - [Corei64 dual rectangular LED for the 64C case](#)
    - [Retroleum C64 LEDs](#)
- Or make them yourself. It's pretty easy, a little bit of soldering experience is enough.
- Parts list:
    - dual color LED or a RGB LED
    - Optional: Some resistors if you want the light to be less bright. For reference, 2.2k Ohm for green. And 220 Ohm for red and blue. If you want it even less bright, then use something like 1.5k for red and 1k for blue.
    - 3 wire cable with a DuPont connector, about 30 cm in length.
    - The longest leg on the LED is ground. The other ones are the colors.

C64U Breadbin to 64C case modification

Many people prefer the more modern-looking 64C case over the original breadbin. One major advantage of the 64C case is its significantly lower keyboard height, which makes it more comfortable to type on. Installing Commodore 64 boards and keyboards into new cases is nothing new; there are many helpful guides available online. In this modification, we focus specifically on the C64U.

The C64U board layout and mounting holes are fully compatible with 64C-style cases. You can either reuse an original 64C case or purchase a brand-new one in the color of your choice. Transparent 64C cases are even available, allowing you to create your own Starlight version.

If you want to use a **brand-new case**, you will need the following parts:

- New 64C case
- Rectangular power LED (preferably dual-color), 5×2 mm, with a wired jumper cable (20–30 cm in length)
- Keyboard mounting kit containing left and right mount brackets, or 3D-print them yourself
- Old C64 or VIC-20 keyboard. Or use the brand-new C64U mechanical keyboard for the best typing experience.

If you want to **reuse an old 64C**, there are several things to consider. Commodore released <u>three variants</u> of the 64C during its lifetime. The first variant used a long board, just like the C64U. The second variant was cost-reduced and featured a short board. Both variants use the same type of case: the top and bottom halves are held together with screws, and the keyboard is mounted to the board itself using metal mounting brackets.

The third (and final) variant was further cost-reduced and no longer used screws. Instead, the top and bottom halves of the case are held together with clips, and the keyboard is clipped directly to the top part of the case. If you have this third variant, you are in luck, as you can directly transfer the C64U board and keyboard.

If you have the first or second variant, you will also need the previously mentioned mounting brackets. If you prefer not to spend any money, you can modify the original metal mounting brackets using a hacksaw.

Post about this on Facebook - part 1 Post about this on Facebook - part 2

One additional thing to note: the power LED wires in many old 64C cases are too short to reach the power LED connector on the C64U board. You will therefore need to extend the wires or obtain a sufficiently long replacement power LED cable (see above).

Transfer steps:

- Open the C64U case and unscrew the board from the case
- Remove the screws from the transparent side panel; this panel is not needed in the 64C case
- Open the 64C case and, if necessary, remove the original 64C board
- Carefully slide the C64U board into the case, aligning the joystick and rear ports with the case cutouts, then loosely secure it with screws
- Attach the mounting brackets to the board
- Connect the keyboard to the board and either screw it to the mounting brackets or clip it to the top half of the case
- Connect the power LED to the case and the Power LED connector on the board
- Attach the top half of the case and secure it

Where to buy? Officially licensed and newly made 64C cases are sold by Individual Computers (Germany). This company uses the original Commodore molds.

- C64C case by Individual Computers

Some other shops:

- Retro8BITshop C64C casing
- RetroPassion C64C breadbin beige case

Modifying a NES gamepad controller for the C64

You can change the wiring of Nintendo NES controller to make it compatible with a Commodore 64

- Detailed explanation about how to do it
- Several You-tuber's addressed this topic

Esthetic modding: putting new device in retro case

The Gamepad 1378

FB post about this Putting the internals of the Atari CX78+ inside a custom 3D printed shell to create 'The Gamepad 1378'

- https://makerworld.com/en/models/2238460

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