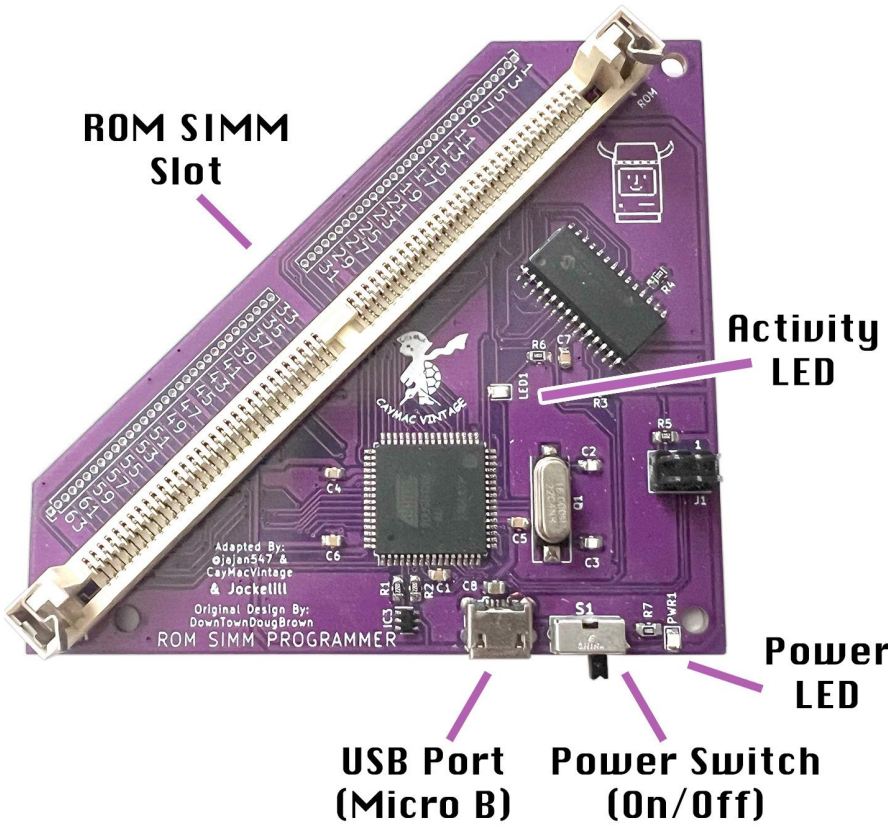
CayMac Vintage ROM SIMM Programmer User Manual

Version 1.0 - July 2023



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About the ROM SIMM Programmer

The ROM SIMM Programmer is a device for reading and writing (aka programming) ROM SIMM modules for vintage Macintosh computers. It has a ROM SIMM slot that is compatible with 64-pin ROM SIMM modules.

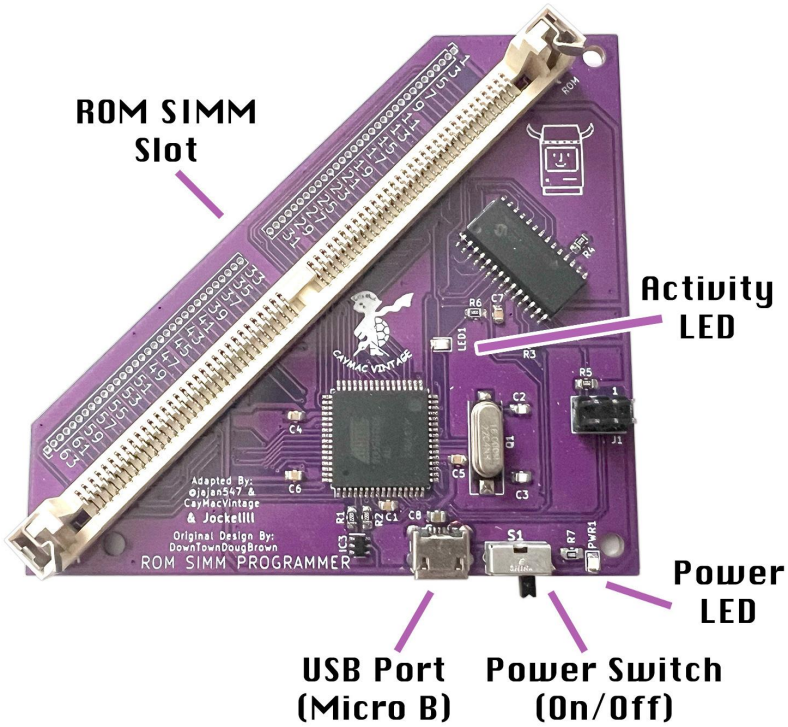
This can be useful for recreating compatible ROM SIMM modules for the Macintosh SE/30, most Macintosh II series computers, and the Macintosh Quadra 700, 900 and 950.

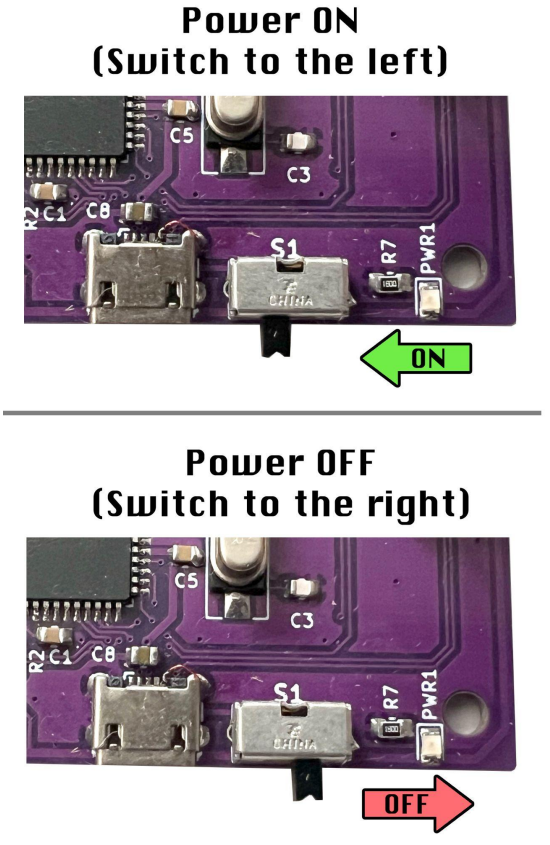
The programmer can be purchased from CayMac Vintage's Ko-fi shop here. It is a recreation of Doug Brown's original ROM SIMM programmer and the BMOW Mac ROM-inator II Programmer, which are no longer available. You can learn more about the original model here.

This product kit does not include a rewritable ROM SIMM module, but does come with a USB Micro B cable. Compatible ROM SIMMs can be purchased from CayMac Vintage, Big Mess of Wires, Kay Koba, and GG Labs.

a. Power ON / OFF Switch

The programmer uses a Micro B USB port for power and data. A power switch is located next to the USB port. When the switch is in the left position (closest to the USB port), it is ON. When the switch is in the right position, it is OFF. The Power LED will light up when the programmer is on.





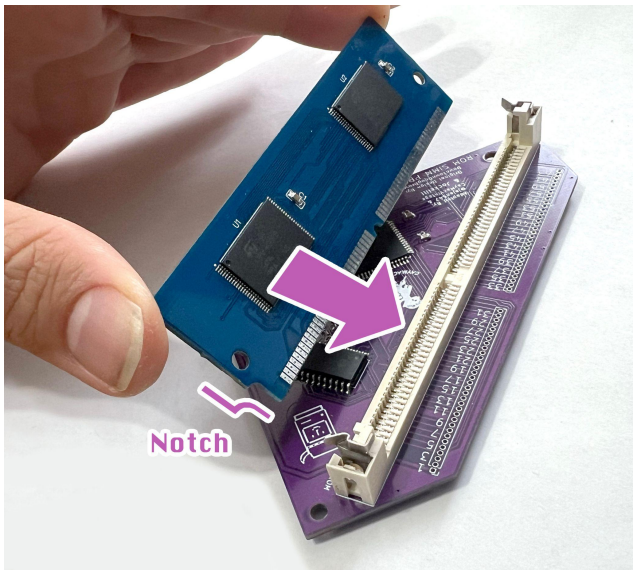
b. Inserting / Removing ROM SIMMs

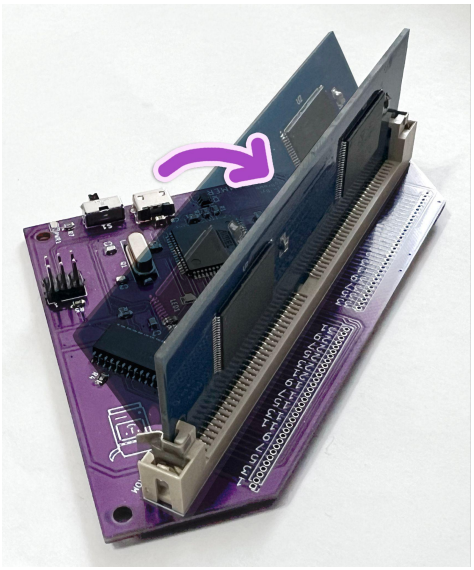
Caution! *Do not force the ROM SIMM into the slot, it should insert freely into the slot.*
Note! *Never insert or remove a ROM SIMM while the Programmer is turned ON!*

Inserting the ROM SIMM:
ROM SIMMs can only be inserted one way. Ensure the notch of the ROM SIMM is positioned toward the edge of the board near the Happy Mac drawing and “ROM” label on the board.

Insert the ROM SIMM into the slot at a 45 degree angle. It should easily align and rest in the slot without force. Make sure the ROM SIMM is completely seated in the slot before continuing.

Raise the ROM SIMM up until it snaps firmly into place. The two metal clips on the side of the slot will keep it locked upright. Double-check that the ROM SIMM is fully inserted and level.





Removing the ROM SIMM:
Slightly bend both of the metal clips outward until the ROM SIMM becomes loose. With the ROM SIMM at a 45 degree angle, carefully remove it from the slot.

Rewritable ROM SIMMs

CayMac Vintage's Ko-fi shop currently sells ROM SIMM modules in the following capacities: 2 Megabyte (MB), 4 Megabyte (MB), and 8 Megabyte (MB).* Other ROM SIMMs from Big Mess of Wires, GG Labs and Kay Koba are also compatible, see the *Additional Resources* section for further details.

These ROM SIMMs are sold blank and must be programmed with data using the SIMMProgrammer software.

The original ROM files for the 64-pin ROM SIMM compatible Macs range from 256 Kb to 512 Kb in size. Therefore, they should be able to be flashed to a 2 Mb or larger ROM SIMM.

Advanced users can also get creative and customize the contents of their ROM SIMMs. Larger ROM SIMMs (up to 8 Mb) can be useful for customization, hacking, or ROM/RAM disk functionality.

> **Note:** *The original Macintosh ROM SIMMs are read-only and are not rewritable.*

Macintosh System Compatibility

The following Macintosh systems have a 64-pin ROM SIMM slot that is compatible with a programmable ROM SIMM module.

- Macintosh SE/30
- Macintosh II series:
  - Macintosh IIx, IIfx, IIcx, IIci, IIsi, IIvi, IIvx
- Macintosh Quadra series:
  - Quadra 700, 900, 950
- Macintosh Performa series:
  - Performa 600

Some Macintosh systems require a jumper to be removed in order for the ROM SIMM module to be used. Refer to the *Troubleshooting* section for details.

Other Macintosh systems may not be supported or may not be electrically compatible with the ROM SIMM module or programmer, use at your own risk!

**Subject to component availability.*

Setting Up and Testing the ROM SIMM Programmer

These steps will let you plug in, set up and test your ROM SIMM programmer.

1. Download the latest version of the SIMMProgrammer software from this link.
   Older releases of the software are available here. It is available for Mac and Windows.

2. Launch the SIMMProgrammer software. A message will inform you that the SIMM programmer is not yet connected to your system.

3. Ensure the power switch on the device is switched to the **OFF** position. The switch is off when it is positioned away from the USB port. The switch is labeled on the device as S1.

   Note: The programmer should be switched off before connecting it to your computer.

4. Insert a compatible 64-pin rewritable ROM SIMM module into the programmer's slot.

5. Plug in a micro B USB cable into the programmer board and connect it to your computer.

   Note: Make sure the USB cable is not a power-only cable, these will not work.

6. Move the device's power switch to the **ON** position. The switch is on when it is positioned toward the USB port.

7. A solid light on the unit indicates that the device is powered on successfully.

   Note: If the light only blinks briefly, this could mean your USB cable is damaged or the USB port on the device may be defective. See the Troubleshooting section for details.

8. Select the ***Electrical test*** button to perform an electrical test of the programmer device. This will test the device to ensure it is functioning properly. It should take under 5 seconds for this process to complete. A dialog box will display details on the results of the test.

9. Turn the power switch **OFF** and insert a ROM SIMM module into the slot. Turn the power switch **ON**.

   Note: Never insert a ROM SIMM module while the programmer is turned on! Doing so can damage the module, the programmer, or your USB port.

10. Select the ***Electrical test*** button again to perform another test on the ROM SIMM module. This will test the module to ensure its functioning properly and has no shorted pins. It should take under 5 seconds for this process to complete. A dialog box will display details on the results of the test.

11. Select the ***Identify chips*** button to show the chip identification (assigned by the manufacturer) for the chips on the ROM SIMM module. It should take under 5 seconds for this process to complete. A dialog box with the information will be displayed.

How to write a ROM file to the ROM SIMM

These steps will show you how to write (aka program) a ROM data file to a ROM SIMM module plugged into the ROM SIMM Programmer. You'll need a ROM SIMM module for this process.

1. Download the latest version of the SIMMProgrammer software from this link.
   Older releases of the software are available here. It is available for Mac and Windows.

2. Make sure the device's power switch is set to **OFF**. (The switch should be positioned away from the USB port)

3. Insert a compatible 64-pin rewritable ROM SIMM module into the programmer's slot.

4. Plug in a micro B USB cable into the programmer board and connect it to your computer.

5. Launch the SIMMProgrammer software.

6. Switch the power switch to **ON**. (The switch should be positioned toward the USB port)

7. You must now set the ROM SIMM capacity option to match the ROM SIMM you'll be programming. The drop down menu displays similar looking options for different ROM SIMM capacities.

   Caution! Be careful to match the capacity size (in MB / Megabyte) **and** the amount of chips on the ROM SIMM. The chip amount in the list can be two chips (labeled as 2x) or four chips (labeled as 4x). Choosing the wrong capacity will produce undesirable results.

   However, if using the CayMac or Big Mess of Wires 2MB ROM SIMM with 2 chips you must select the 4MB 2x chip option. A future software update will correct this issue.

8. Optionally, you can select the **Identify chips** button to provide you with detailed technical information about the ROM SIMM module you've inserted.

9. In the "Write file to SIMM" section, use the **Select file** button to choose a ROM file to write to the ROM SIMM. Be sure the ROM file will fit on the target ROM SIMM you are programming.

10. Optionally, you can select additional verify and erase options when writing the ROM file to the ROM SIMM module. These values should be left as-is by default.

11. Select the **Write to SIMM** button to write the ROM file to the ROM SIMM module. This process can take a few minutes depending on the amount of data being written. A dialog box will show the results of the write and inform you if the process was successful.

12. For advanced users, you can select the Flash individual chips button to change to the Advanced mode of the software. This will allow you to flash data directly to certain chips on the ROM SIMM. Only use this functionality if you know what you are doing!

How to read a ROM SIMM and save it to a file

These steps will show you how to read (aka dump) a ROM file from a ROM SIMM module plugged into the ROM SIMM Programmer. You'll need a ROM SIMM module for this process.

1. Download the latest version of the SIMMProgrammer software from this link.
   Older releases of the software are available here. It is available for Mac and Windows.

2. Make sure the ROM SIMM Programmer power switch is set to **OFF**. (The switch should be positioned away from the USB port)

3. Insert a compatible 64-pin ROM SIMM module into the ROM SIMM Programmer.
   Now set the power switch to **ON**.

4. Launch the SIMMProgrammer software.

5. Plug in a micro B USB cable into the programmer board and connect it to your computer.

6. You must now set the ROM SIMM capacity option to match the ROM SIMM you'll be reading from.

   The drop down menu displays similar looking options for different ROM SIMM capacities. Be careful to match the capacity size **and** the amount of chips on the ROM SIMM. The chip amount in the list can be two chips (labeled as 2x) or four chips (labeled as 4x). Selecting the wrong option may produce corrupt data.

7. Optionally, you can select the **Identify chips** button to provide you with detailed information about the chips on the inserted ROM SIMM module.

8. Choose the **Select file** button to set the destination location for where the program will save the dumped ROM file.

9. Select the **Read from SIMM** button to read the ROM SIMM to the ROM file you selected.

10. The save process will usually take 30-60 seconds to read for a 4 Mb ROM SIMM. This process may take longer for larger ROM SIMM modules. A “The read operation finished” dialog will display once the process has successfully completed.

Troubleshooting

Mac OS Compatibility Notice for SIMMProgrammer Software

Version 1.1.2 of the SIMMProgrammer software has been tested on Intel based Macs running Mac OS (10.13) “High Sierra” and (10.14) “Mojave”. This software also works with Apple Silicon based Macs (M1, M2, etc.) running macOS (12.6) “Monterey” or later.

The SIMMProgrammer software won’t detect the ROM SIMM Programmer device!

The most common solution is to replace your USB cable. Some Micro B USB cables are power-only cables, meaning they can only supply power to devices and not transmit data. Try another USB cable or purchase a quality brand cable and try connecting it again.

In some cases, the software may be incompatible with your system. Try downloading the latest version of the software and ensure your system meets the system requirements.

What if the *Electrical Test* fails?

The dialog box will show you where the test has failed and where an electrical short may be. This normally means that there is a solder bridge or something metallic causing a short between pins. If you get a short message without a ROM SIMM inserted you may have a short on the main large chip on the board. Check the pins to be sure nothing is causing a bridge.

If you get the message with a ROM SIMM inserted, you likely have a bridge between pins on the ROM SIMM. Check all the chip’s pins for bridges and remove any debris to resolve the issue.

Why can’t I choose the right ROM SIMM capacity in some versions of the SIMMProgrammer software?

Earlier versions of the SIMMProgrammer software have different ROM SIMM capacity options. For example, version 1.0.3 doesn’t have an option for the two-chip 4 megabyte (4 MB) version of the ROM SIMM module currently sold by CayMac Vintage. Please use version 1.1.2 instead.

I purchased a ROM SIMM from the CayMac Vintage shop, is a ROM file already on it?

ROM SIMMs purchased from the CayMac Vintage shop are provided to you empty. They do not include any ROM file or data written to them. You must program (aka flash) a ROM file to these ROM SIMM modules using the SIMMProgrammer software. You can find many common compatible vintage Macintosh ROM files on the internet on sites such as Archive.org.

What rewritable ROM SIMMs are compatible with the ROM SIMM programmer?

As of July 2023, ROM SIMMS from CayMac Vintage, Big Mess of Wires, GG Labs, and Kay Koba are compatible. ROM SIMMs from Garrett's Workshop are not currently compatible.

I flashed a ROM file to my ROM SIMM but it won't work on my Mac, why?

There are countless versions of Macintosh ROM files floating around the internet. Some may have been modified, split, compressed, or incorrectly saved from the source system. Try using another ROM file to see if this resolves your issue.

The file you may be using may also be incompatible with your Macintosh. Only use ROM files designed for your Macintosh model. For example, a Macintosh SE/30 ROM should not be used with a Macintosh IIci computer.

Why is my Macintosh II series computer not working with my flashed ROM SIMM?

Some Macintosh II series computers have a jumper on the logic board that is used to switch the Mac from using its built-in ROM to a ROM installed in the ROM SIMM slot. Removing this jumper will tell the Macintosh to use the ROM in the ROM SIMM slot and not the built-in ROM.

The service manual for these computers usually tells you what jumper controls this function. For example, on the Macintosh IIci the jumper is labeled W1. The Macintosh SE/30 does not have a jumper to remove as it does not have a built-in ROM.

Why do some modern ROM SIMMs not fit perfectly into my Mac's ROM SIMM slot?

In some cases the thickness of modern ROM SIMM modules are different from the original modules. This may cause your module to be too loose or too stiff to easily fit in the ROM SIMM slot. If there is a poor connection in the slot the computer may fail to startup properly.

Rubber bands or 3D printed holders can help strengthen the connection between modern ROM SIMM modules and the ROM SIMM slot on your Macintosh.

My ROM SIMM Programmer won't turn on and the LED won't light up, why?

The LED light indicates that the ROM SIMM Programmer is switched on and is getting power from the USB port of your computer. If the LED is off you should first check that the power switch is turned on. When the switch is positioned toward the USB port it is in the **ON** position.

Try using another USB cable or another USB port on your computer. If you are using a USB hub, ensure it has its power supply plugged in. Try plugging the programmer directly into your computer's USB ports to bypass any potential problems caused by USB hubs.

Note: A small number of early ROM SIMM Programmers may have a defect with the USB port. The USB port is missing a ground connection to the board so the board will not power on. Please contact CayMac Vintage for further information on how to resolve this issue.

Glossary

ROM - Read-only memory. A type of computer storage containing permanent (non-volatile) data that normally can only be read from a device, not written to. Commonly known as a ROM chip.

ROM SIMM Module - A memory stick which contains one or more ROM chips. For the purposes of this manual, it's a 64-pin module which is compatible with this programmer device and certain vintage Macintosh computers.

Original ROM SIMM modules installed in vintage Macintosh computers are read-only. They are not rewritable and cannot be programmed with new data.

Modern ROM SIMM modules use flash chips and are rewritable. This lets you write new ROM data to them, erase them, and reuse them multiple times. These modern modules are available from the CayMac Vintage shop in multiple sizes 2 MB (megabyte), 4 MB, etc.

ROM SIMM Programmer - The device used to read or write ROM SIMM modules. It is connected to a modern Mac or Windows computer via a USB cable. The SIMMProgrammer software lets you perform the read (aka dump) and write (aka flash) functions for this device.

SIMMProgrammer - The software used to control the ROM SIMM Programmer device. It is used to read data from and write data to ROM SIMM modules that are connected to the device.

ROM file - A data file containing important information that enables a device, like a vintage Macintosh computer, to startup and operate. Different computers can have different ROM files.

ROM data files are created by reading (aka dumping) the data from a physical ROM chip or ROM SIMM module to a computer file. These files can then be written (aka flashed) to modern rewritable ROM SIMM modules. Advanced enthusiasts may also modify the data or code of these ROM files to add or change the functionality of their vintage Macintosh computer.

Dump / Dumping - The process of reading data from a ROM SIMM module using a ROM SIMM programmer and saving it to a file on your PC. This can also be referred to as reading or saving.

Flash / Flashing - The process of writing data to a ROM SIMM module using a ROM SIMM programmer. This can also be referred to as writing, programming, or reprogramming.

Vintage Macintosh Computer - For the purpose of this manual, a computer made by Apple Computer, Inc. released between the late 1980's or 1990's. These computers run the Macintosh System Software (Mac OS) and are insanely great!

Additional Resources

This product is made by and for vintage computer enthusiasts. Therefore, there is no dedicated support channel available for this product. Users requiring further assistance are encouraged to use communities such as TinkerDifferent.com for assistance.

Sales Support:
If you purchased a product and it arrived damaged or is defective, please contact CayMac Vintage at: CayMacVintage@gmail.com

Note: All technical support inquiries sent to this sales support address will be ignored.

Websites

An electronic copy of this manual, complete with clickable links, is available on this website:
https://github.com/CayMac-Team/ROMSimmProgrammer

The following websites are referenced in this manual:

CayMac Vintage's Ko-fi shop & Webpage:
https://ko-fi.com/caymacvintage/shop
https://www.caymacvintage.com

ROM SIMM Programmer Software GitHub Page:
Main page: https://github.com/CayMac-Team/ROMSimmProgrammer
Previous versions: https://github.com/dougg3/mac-rom-simm-programmer.software/releases

Big Mess of Wires (BMOW) ROM-inator II Product Page & Programming Guide:
https://www.bigmessowires.com/mac-rom-inator-ii/
http://www.bigmessowires.com/mac-rom-inator-ii-programming/

GG Labs MACSIMM *(Rewritable ROM SIMM module)*
https://gglabs.us/node/2019

Kay Koba SMC ROM SIMM Card *(Rewritable ROM SIMM module)*
https://en.infinityproducts.co.jp/product-page/smc-rom-simm-card

Acknowledgments

Special thanks to:

Janjan547

WillJac

Jockelill

DownTownDougBrown

…and everyone who supported this project!