

Mac ROM-inator II Instructions

The pre-programmed ROM image is compatible with the Macintosh IIx, IIcx, IIci, IIfx, IIsi, and SE/30. The Mac ROM-inator II module is physically compatible with any Macintosh having a 64-pin ROM SIMM socket, except the Quadra 660AV and 880AV. This includes the previously mentioned models as well as many other Quadra, LC, and Performa models. For these other models, the flash memory will need to be reprogrammed with an appropriate ROM image.

1. Identify the ROM SIMM Socket

Locate the ROM SIMM socket on the logic board. This is a 64-pin socket that looks similar to the RAM SIMM sockets, but is slightly longer and is located in a separate area from the RAM sockets. On many logic boards, the socket is labeled ROMSIMM1 on the PCB silkscreen.

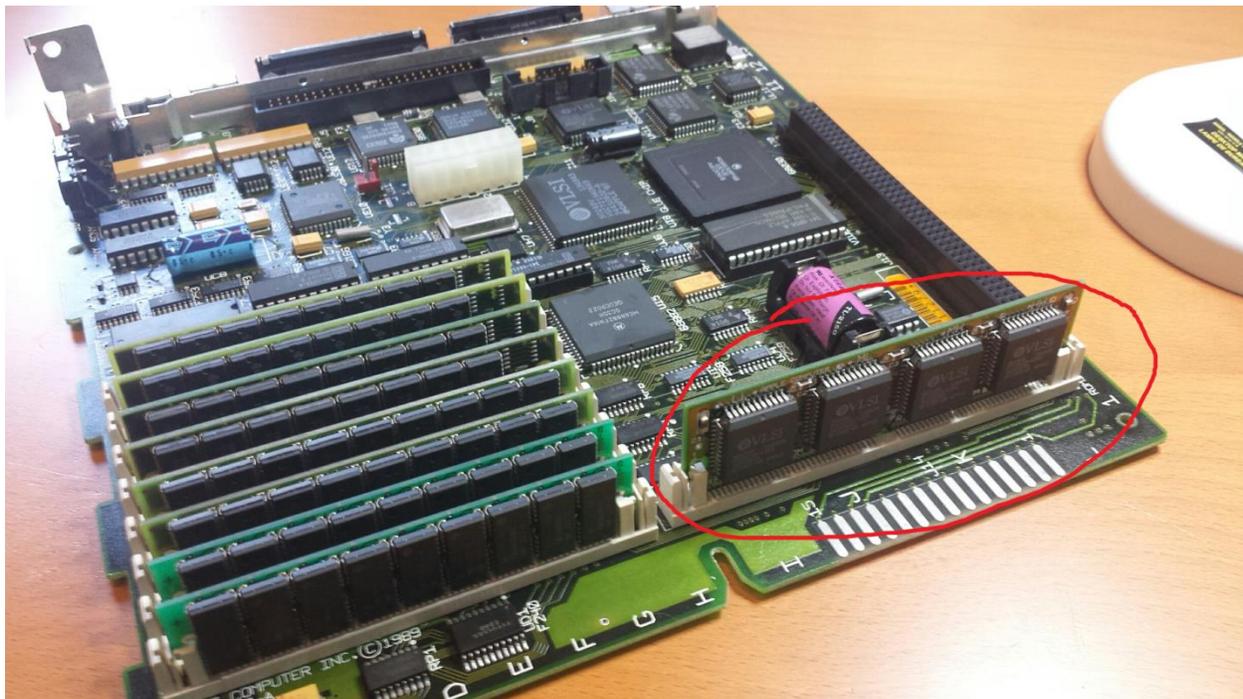


Figure 1 - Stock ROM SIMM for SE/30

2. Remove the Old ROM

If there's already a ROM SIMM in the socket, remove it. The Mac IIsi, IIcx, and IIci normally have empty sockets, because their stock ROM is soldered to the logic board. Most other models have a stock ROM SIMM that must be removed.

To remove the old ROM SIMM, push away the clips that lock it in place, and then tilt the SIMM backwards 30 degrees so it's lying with the chips facing up. If the retention clips are plastic, use a minimum of force and be careful not to break them. Old plastic is very brittle.

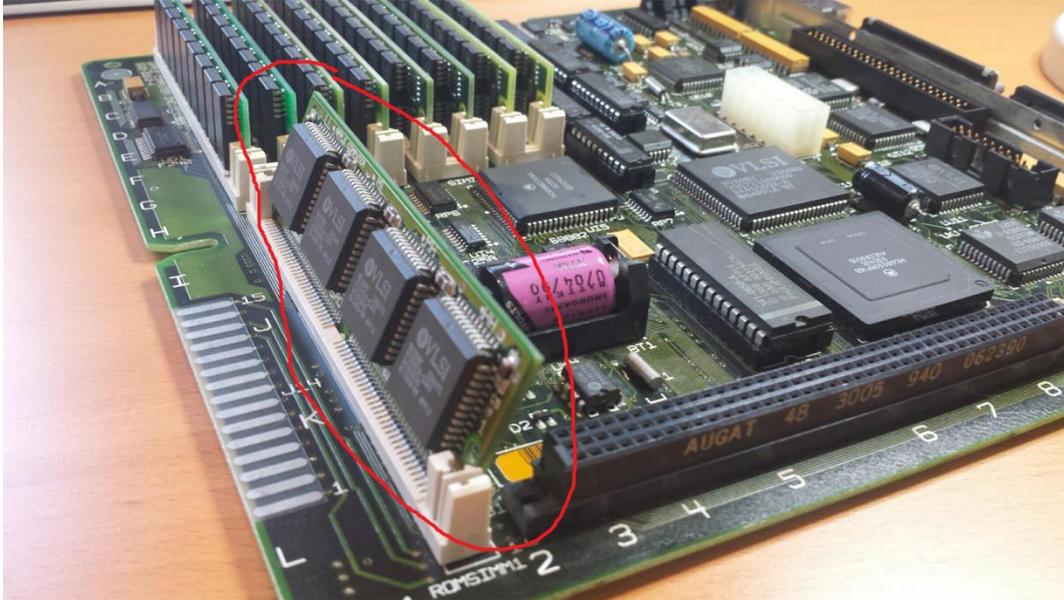


Figure 2 - Release Clips and Tilt SIMM Backwards

Then pull the whole SIMM gently out of the socket.

3. Insert the Mac ROM-inator II

To insert the new ROM SIMM, follow the removal instructions in reverse. Gently slide the SIMM into the socket at a 30 degree angle, with the chips facing up. Wiggle the SIMM to make sure it sinks down as far into the socket as it will go. Then tilt the SIMM 30 degrees upwards until it's vertical, and both retention clips snap into place with an audible click.

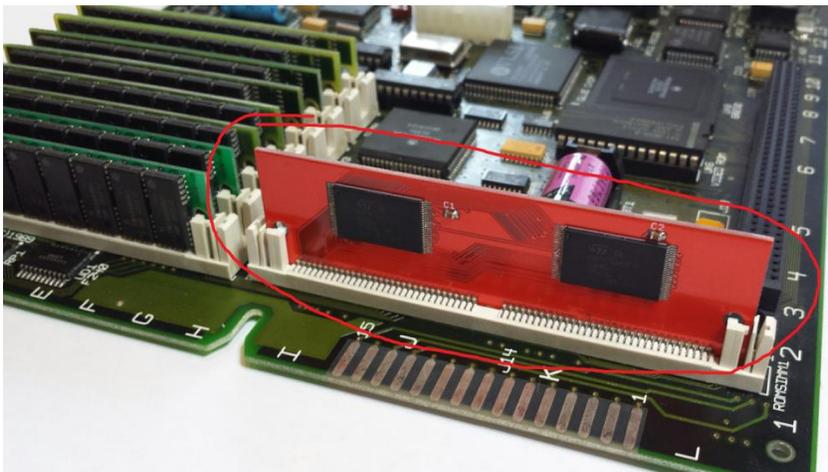


Figure 3 - Mac ROM-inator II Installed

4. Set the Logic Board Jumper

You may need to add or remove a jumper on the logic board to make the Mac work correctly with the new ROM SIMM. A jumper is a small plastic cap with a piece of metal inside. When the jumper is placed onto a pair of adjacent pins, the metal connects the pins together electrically. This technique is commonly used to make configuration settings in electronics equipment.

If there was previously a stock ROM SIMM installed in the ROM socket, and you've replaced it with the Mac ROM-inator II SIMM, then no jumper changes are needed. But if the socket was previously empty, a jumper change may be required.

Mac IIcx and IIci: Remove the jumper at the location labelled W1 on the logic board.

Mac IIsi: Insert a jumper at location W1 on the logic board.

Quadra 700: ROM SIMM socket automatically disables the onboard ROMs when a SIMM is inserted.

Other models: If there's a W1 jumper on the logic board, and you installed the Mac ROM-inator II into a socket that was previously empty, change the W1 jumper to the opposite of its previous setting.



Figure 4 - Examples of Jumpers

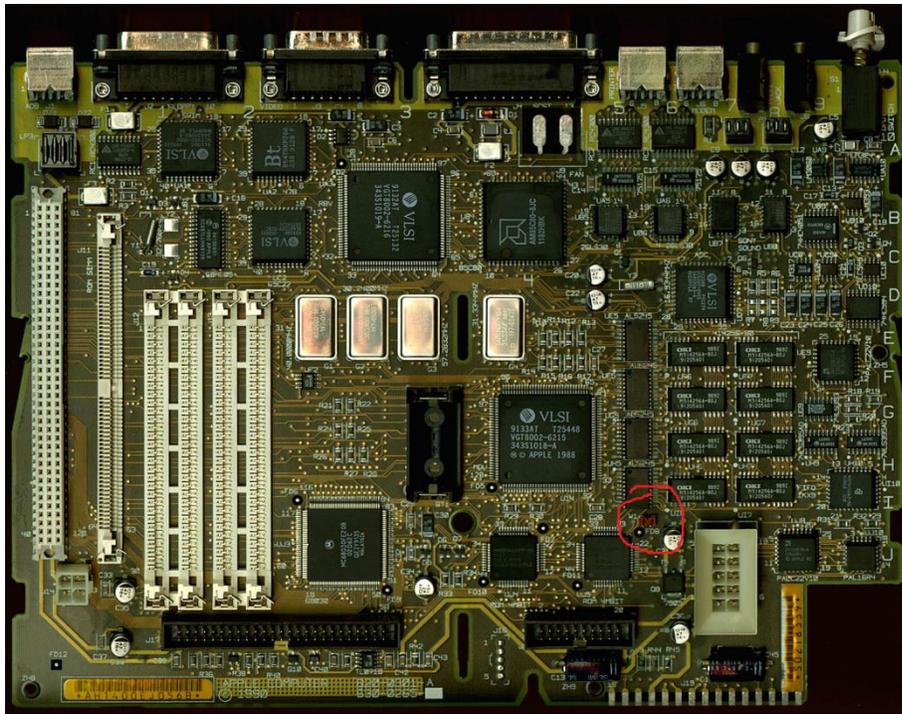


Figure 5 - Mac IIci W1 Jumper Location

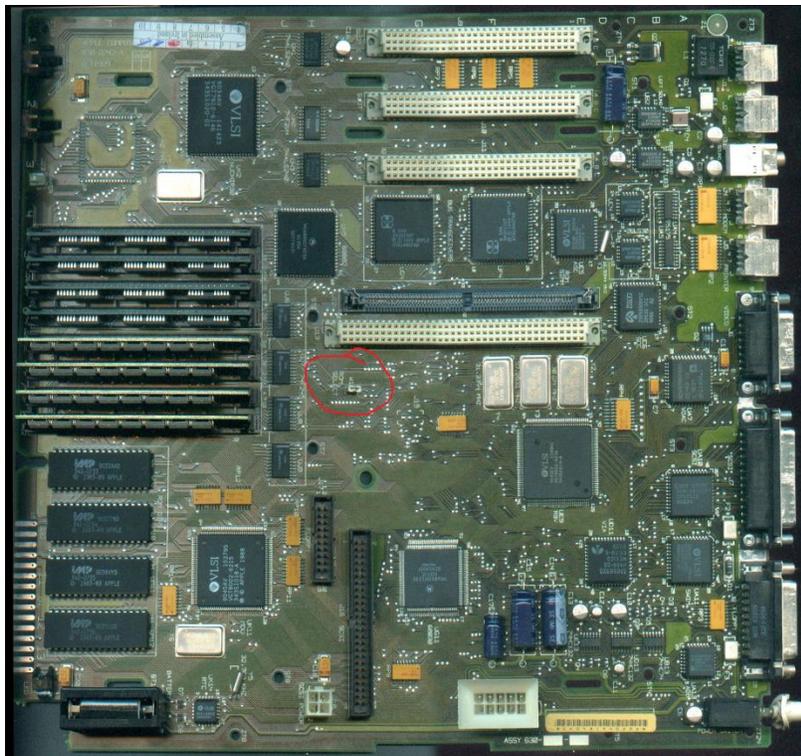


Figure 6 - Mac IIcx W1 Jumper Location

5. Patch the System File on your Hard Drive (if applicable)

If your Mac has a hard drive with System 7.5 or later installed, you'll need to patch the System file on your hard drive. System 7.1 and earlier versions don't require a patch, nor does booting from the ROM-inator's built-in ROM disk.

For details on how to patch your hard drive's System file, see <http://www.bigmessowires.com/mac-se30-with-upgraded-rom/>

6. Usage

With the ROM-inator II, you have the option to boot normally from a standard startup disk, or to boot from the built-in ROM disk. The included ROM disk is like a recovery partition for your Macintosh, containing System 7.1 and a collection of disk utility programs. With the ROM disk it's possible to boot a computer with an unformatted or damaged hard disk, and then format or repair it using the utility programs. Or boot a computer with no physical disks at all, to perform troubleshooting and diagnostics.

When first powered on, a Macintosh with the ROM-inator II will play a customized startup sound, and display diagnostic info about the amount of installed RAM, the current addressing mode, and the detected ROM disk type. After a moment, an interactive startup menu will be displayed.



To boot from the ROM disk as a read-only disk, press the R key on the keyboard. Or to convert the ROM disk into a writable RAM disk, press the A key. Or to bypass the ROM disk, do nothing and wait five seconds. If no keys are pressed, the Macintosh will boot normally from an attached SCSI or HD20 disk, or will wait for a floppy disk to be inserted.

Note: If booting from a SCSI disk when the ROM-inator II is installed, any 32-bit enablers or extensions such as MODE32 or 32-Bit System Enabler must be removed from the disk's System folder.

7. Troubleshooting

A. The Macintosh fails immediately when the power is turned on. The screen is black, or shows lines or garbage. There is no startup sound, or it plays the "chimes of death" sound.

Check that the Mac ROM-inator II SIMM is fully inserted into the ROM socket, and locked into place. A SIMM that is loose or slightly crooked in the socket may cause intermittent errors or total failure. The SIMM should be pushed down into the socket as far as it will go, and the retention clips on both sides should fully engage with an audible click.

Confirm that jumper W1 is set correctly, as described in step 4. With an incorrect jumper setting, both the on-board ROM and the Mac ROM-inator II SIMM may try to operate at the same time, causing a failure.

Confirm that all RAM SIMMs are fully inserted and locked into place. If the computer plays a normal startup chime, but then a few seconds later plays the chimes of death, this indicates a likely RAM problem.

B. I have a Mac SE/30. I tried all the suggestions in the previous section, but the computer still fails immediately when the power is turned on. The screen is black, or shows lines or garbage.

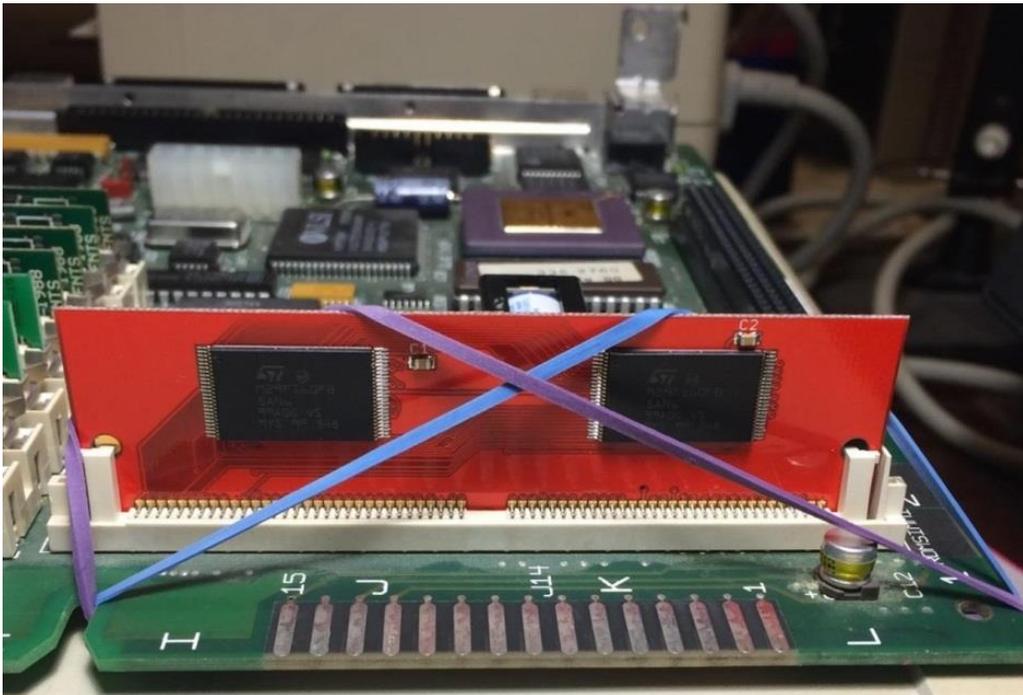
The ROM socket in the Mac SE/30 is slightly different than other Mac models, making the SE/30 more likely to have problems with a loose ROM SIMM creating intermittent or incomplete electrical contact. To test for a loose ROM SIMM, try turning on the computer while using your fingers to push the ROM SIMM forward into the socket's contacts.

There are several ways to make the ROM SIMM fit more tightly in the SE/30 socket:

- 1) Use a heavy-duty paperclip as a spring to brace the ROM SIMM. An unbent paperclip will slide into the cutouts on the sides of the ROM socket, as shown in the photo.



- 2) Use a pair of rubber bands wrapped around the ROM SIMM and the edge of the logic board to pull it tight:



- 3) Use folded pieces of paper or scrap plastic to make a shim, and wedge it behind the back of the ROM SIMM, on the side with the skull logo.

- 4) Use 3D-printed plastic clips to hold the SIMM in place. ROM-inator II owner Joel Crane has developed these printable clips for the SE/30: <https://www.prusaprinters.org/prints/35592-macintosh-se30-rom-clips> For people without access to a 3D printer, he also sells the clips on Etsy: <https://www.etsy.com/listing/840042244/macintosh-se30-rom-inator-clips>

The SE/30 is also especially picky about the RAM configuration, and some RAM configurations that work OK with the stock ROM don't work correctly with the Mac ROM-inator II's pre-programmed ROM image. In one example, an SE/30 that wouldn't boot with the Mac ROM-inator II had four "mismatched" RAM SIMMs of different types and speeds. After replacing these with four matched SIMMs, the computer booted normally. If your SE/30 has trouble booting, and the other troubleshooting suggestions don't help, try replacing or rearranging the RAM.

C. I can boot from the built-in ROM disk, but can't boot from my SCSI hard disk or floppy disk. I see the Happy Mac icon and "Welcome to Macintosh" banner, but then the Mac freezes or displays a Sad Mac icon.

Check the System folder on your hard disk, and remove any 32-bit enablers or extensions you find there, such as "MODE32" or "32-Bit System Enabler". These are unnecessary when using a 32-bit clean ROM, and will cause problems. If your hard drive contains System 7.5 or later, also see step 5 above for instructions on patching the System file.

D. The Mac boots, and I can see the startup menu with the Pirate Mac icon. But when I press R for the ROM disk, the computer freezes.

This is likely due to RAM that is bad or not inserted correctly, or to using mismatched sets of RAM SIMMs. Check the RAM, and used matched sets of four SIMMs if possible.

E. When I have an HD20 Hard Disk attached, the Mac boots from the HD20 without ever displaying the ROM disk startup menu.

Because of the way HD20 support is implemented, it has higher priority than the ROM disk. If you don't want to boot from the HD20 drive, but instead want to use it as a non-bootable data disk, the easiest solution is to remove the system folder from the HD20 drive.

You can also use the Startup Disk control panel to select a SCSI disk as the default startup disk, if you don't wish to boot from HD20. If you're not able to access the control panel, you can also reset the startup disk selection by zapping the PRAM. Hold down command-option-P-R while you turn on the power, and continue holding them until you hear a second chime from the Mac.