

Sega CD FRAM BIOS – Region Free 32K Enabled Memory

For SegaCDX, Sega Model 1, 2 and the PAC-S10 by Leo Oliveira

This mod increases the capacity from 8KB (125 blocks) to 32KB (500 blocks)
Sega CD2 needs a game disc inserted to be able to manage the memory storage,
otherwise the Options button is not available.

Instead of installing a 8K FRAM you will install a 32KB FRAM of the kind you would
use with the Saturn (FM1808-70-SG) and enjoy four times the save space an original
console would have.

Along with that the code changes that performs the region free behavior improved
GREATLY and the compatibility is near perfect.

Now, only games that actually DETECT that they are running on the wrong BIOS fails
booting. Example of games that scan the CD BIOS for detecting wrong region or detect
the MD region register: Flashback / Sensible soccer



Installation:

Byteswap the ROM file before burning.

On FRAM chip:

- Pin 1 has no pad to begin with
- Pin 26 is A13 and pin1 is A14
- connect pin 26 to 68k pin 45
- connect pin 1 to 68k pin 46

Lift power reset button

Lift power reset button on IC9

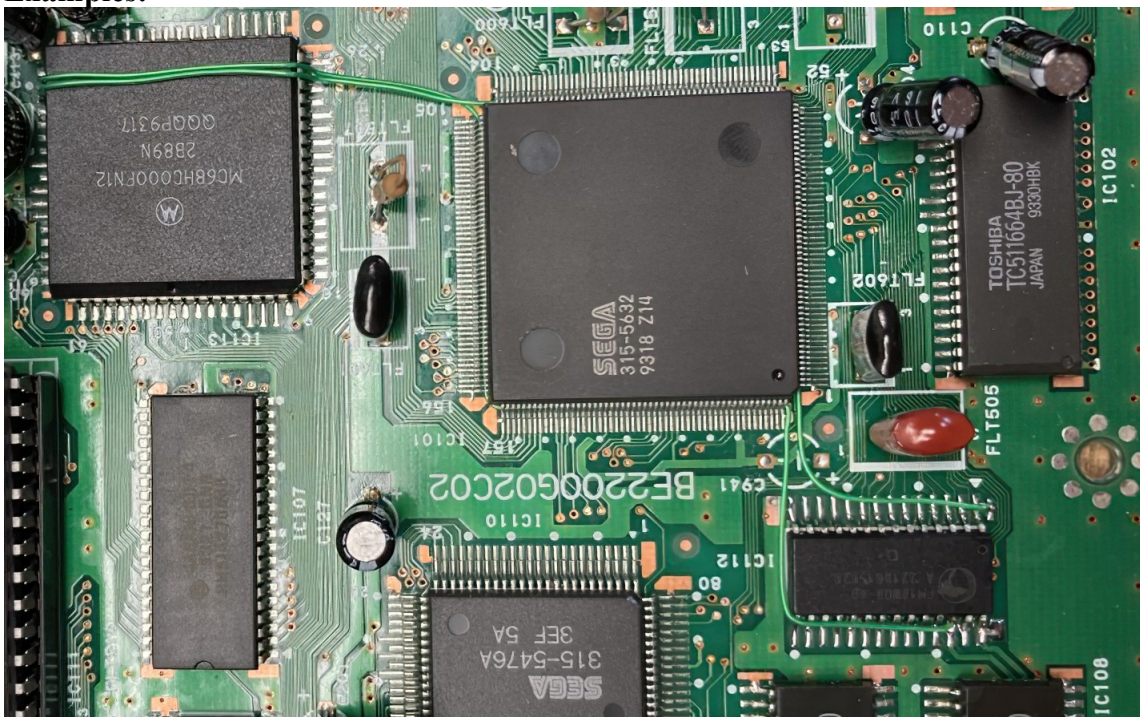
Lift pin 9 or 10

Or lift Pin 26 on the FRAM

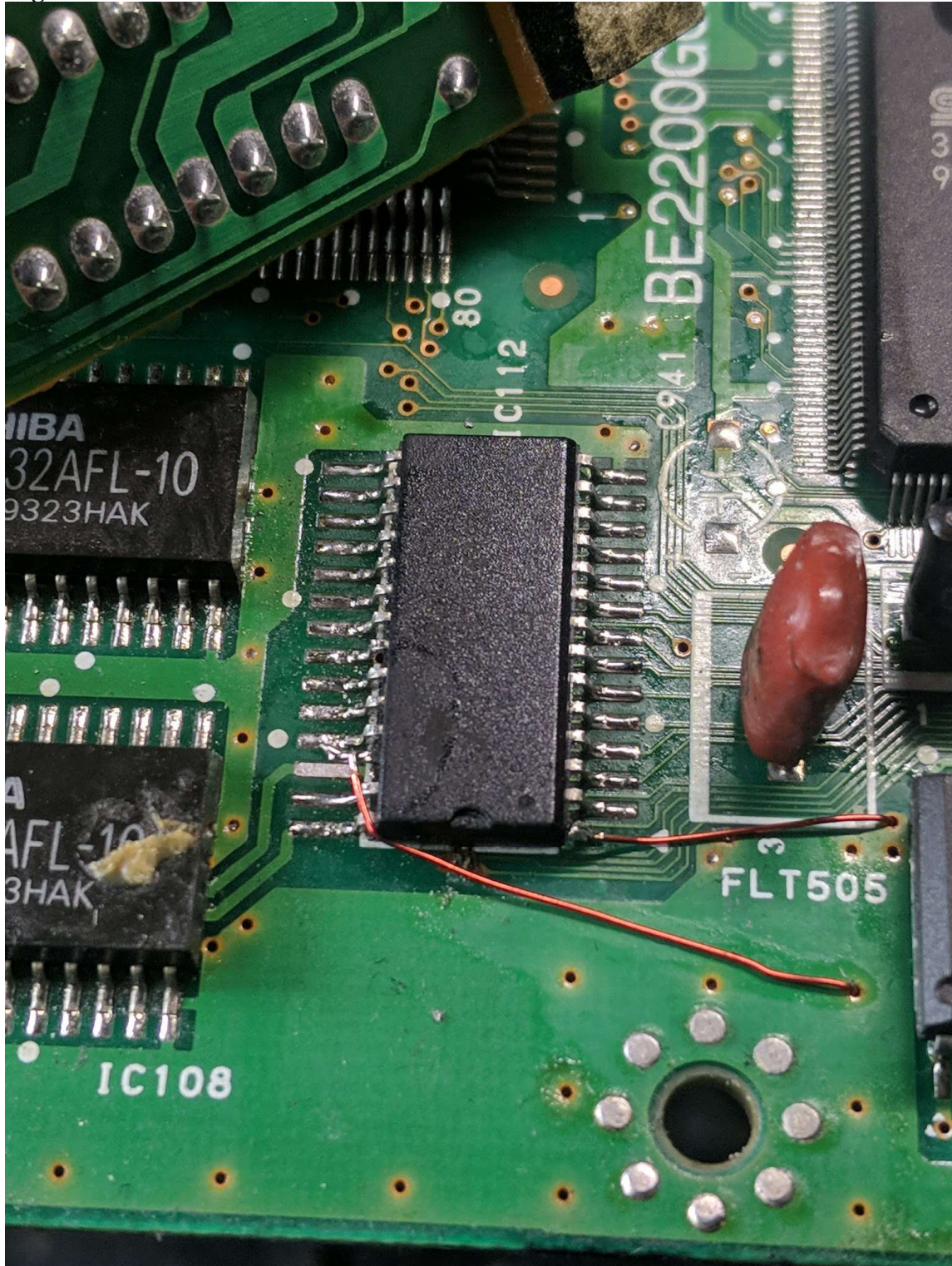
Note:

The Sega CD 2 has three BIOS versions and you've got to match the BIOS to the system BIOS version that's currently installed or else some features will not work correctly; an example is the reset button. After removing the original EEPROM dump it and the version can be seen in a hex editor.

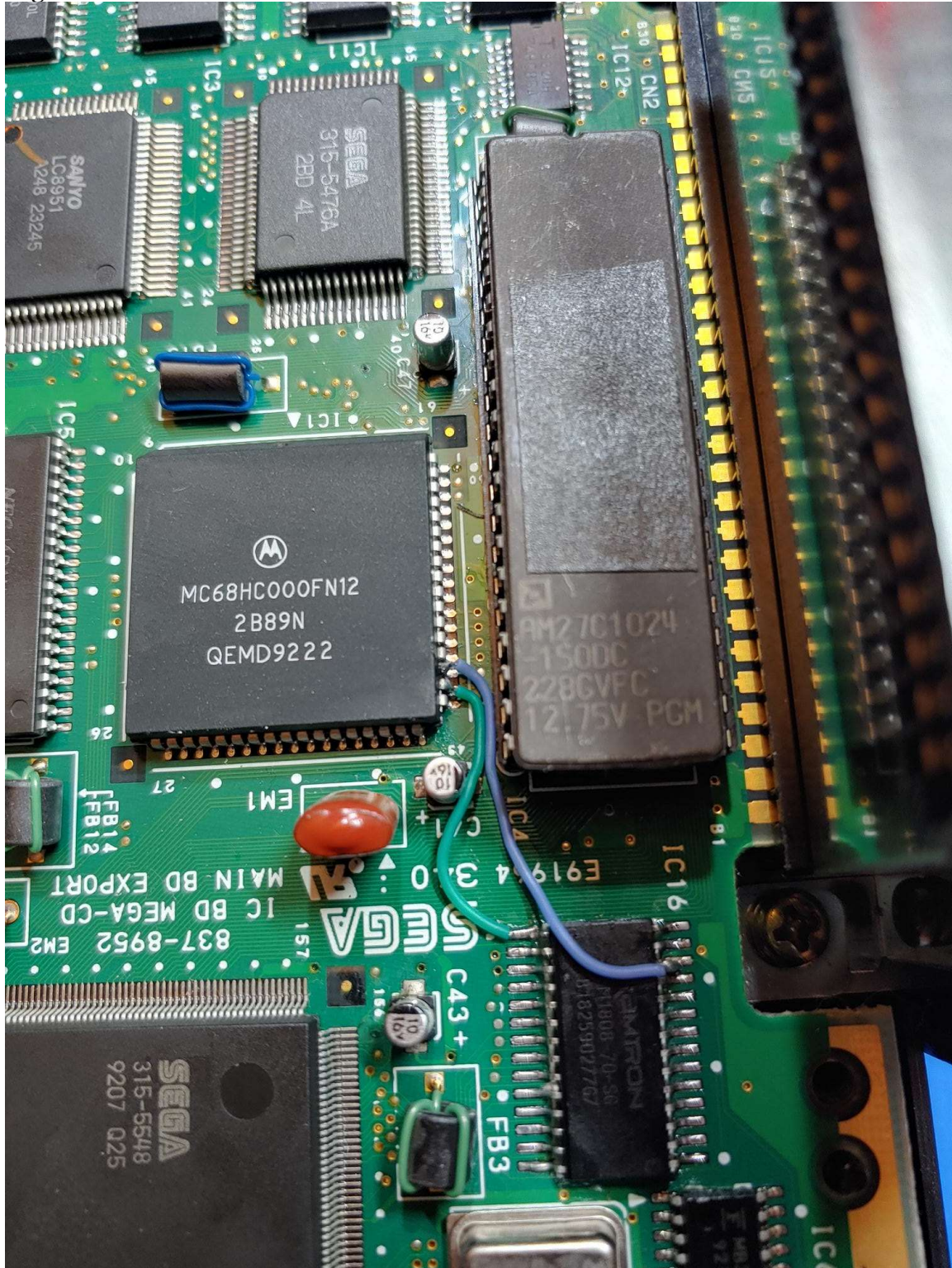
Examples:



Sega CD Model 2

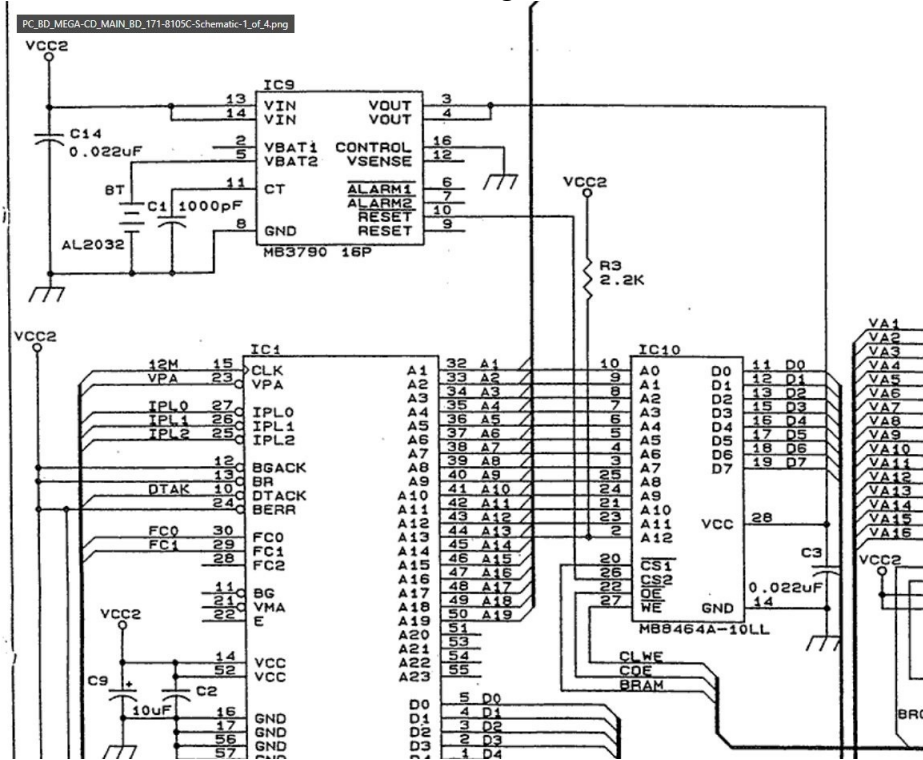


Sega CD Model 1



Mega CD Schematic

FRAM Pin 26 lifted as alternate to lifting Pin 9 or 10 on IC9.



The PAC-S10 by Zaxour

https://consolemods.org/wiki/LaserActive:PAC-S10_FRAM_Save_RAM_Modification#256K_FM18W08_With_Expanded_Save_RAM_Modified_BIOS

Thanks to Russell OQuigley (RAQ) excellent work on reverse engineering the PAL MEGA-CD SUB-CPU BIOS this become possible.

More about the Russell-region-free-cd-bios and these new BIOS by Leo Russell, the guy who figured how to patch the sub CD BIOS, all the stuff Leo has done is based on his BIOS but it's the EUROPEAN BIOS and it does not hide the options button ever. Leo's work is on the main MD side of the CD BIOS and might look inside the menu code and try to figure out a way of deleting the obnoxious code that hides the options button.

ref. <https://nfggames.com/forum2/index.php?topic=4141.0>

Document assembled by MicroNut99 aka slingshot2041@gmail.com – v.2. 11/20/2024