# CPS2 Multi Boot!!!

Finally this long awaited project has come to an end and all the CPS2 fans will be able to play all the CPS2 games using just a single CPS2 Setup. It's been months of work and testing so I really hope you enjoy it as much as I did building it.

In order to make this work, you'll need to have a suicided CPS2 set, which means both A+B Boards. The B Board, which is where the roms are, needs to be opened and the kit is installed inside.

You can open the B Board with a TORX T20 bit. There is also a full tutorial from Mitsurugi-w here: https://www.youtube.com/watch?v=HExwzQlxrQ4

FIRST STEP
The first that you need to do is to remove all the socketed Eproms and mask roms that are installed in the sockets. When you remove it, it will reveal some numbers. See picture below of Eproms and mask roms to be removed (Red are the sockets, don't try to remove that :)
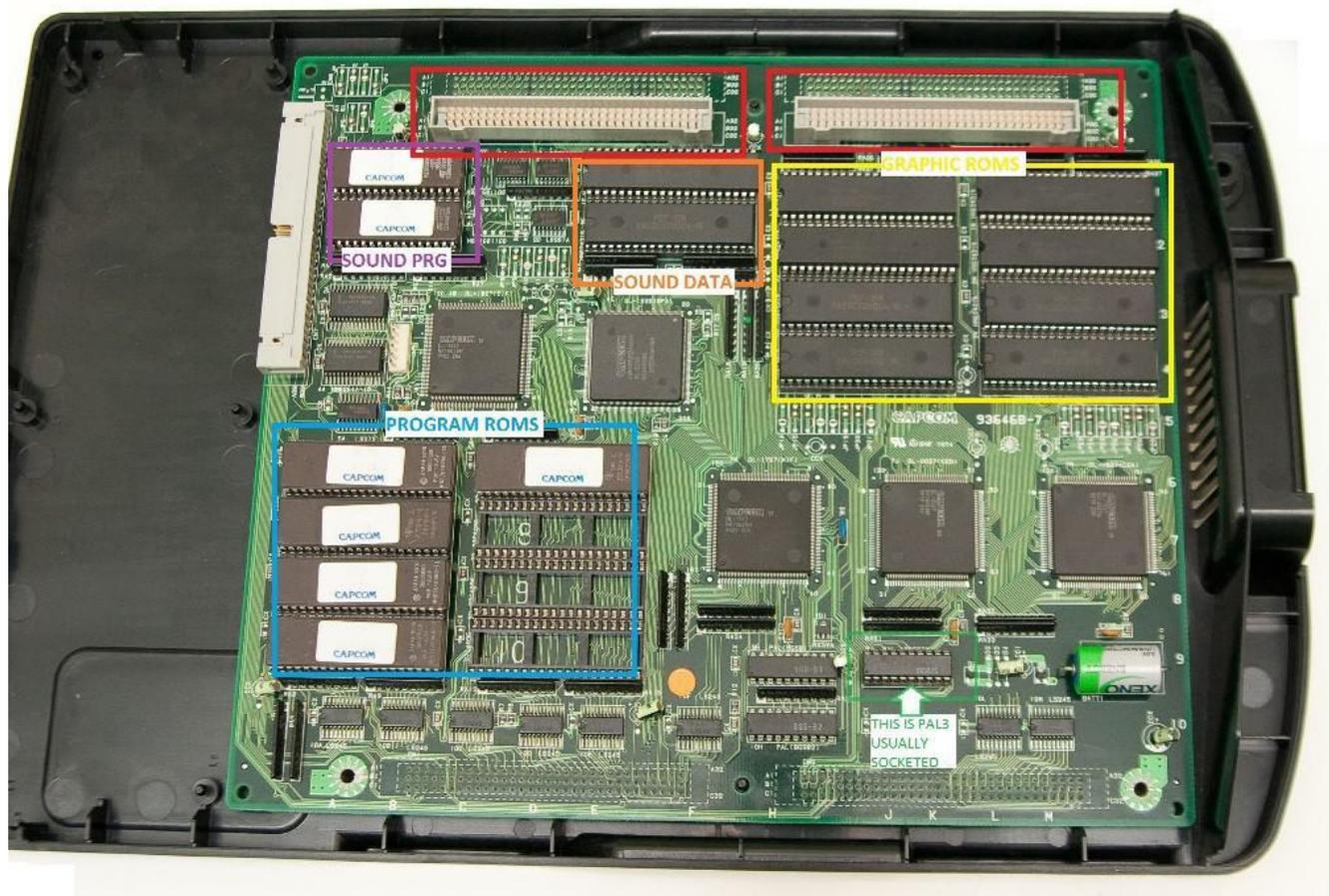
Make sure that you have a battery-less B Board. We won't support anyone asking for information about how to kill a working PCB. Look a little bit around the internet, there are plenty of suicided B boards available.
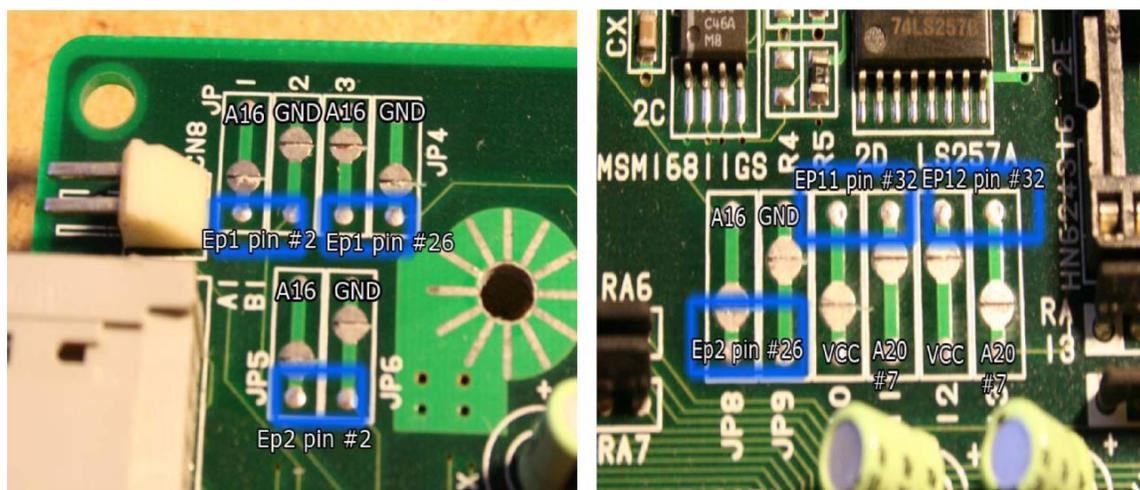
SECOND STEP

Now you need to check the Jumper configuration of your PCB. This kit works with the following configuration which is the highest possible:
SOOS SO OSOSOS SOSOSOSO SOSOSOSO (S=Short, O=Open)
To check the location of the Jumpers, please see here:
http://wiki.pcbotaku.com/wiki/CPS2_Eprom_and_Jumper_details

You can try with a tester in continuity mode (makes beep if two points are electrically connected). If you hear a beep, then it's short.

If any of the jumpers is not properly installed you may need to cut the contact or solder a small point to make continuity.

THIRD STEP

Now you need to look at your PAL3 chip. It's a 20 pin chip that is marked in the picture from above in green (bottom center). You need to look at the revision of your board (center-right), just below the yellow marked Graphic Roms. In this case, it's a 93646B-7, so revision 7.

This kit only works with PAL F+cable or PAL G. If you don't have that PAL, try to get it from someone on the forums or you can get it from us as well. From us you'll get PAL G which is the last revision Capcom made.

If you have a revision 3 or 4 B Board, then you need to add an extra cable that goes from pin9 of PAL3 to pin C13 on connector CN3(If your using the G pal then the wire link needs to go to pin 9, if your using the F pal then it goes to pin 7).

To make your life easier, instead of having to solder into pin C13 on connector CN3, I've provided a pin already available in the Multi boot where it should be plugged in. This pin is

located at position J17 in the lower center part of the bigger board. See below:
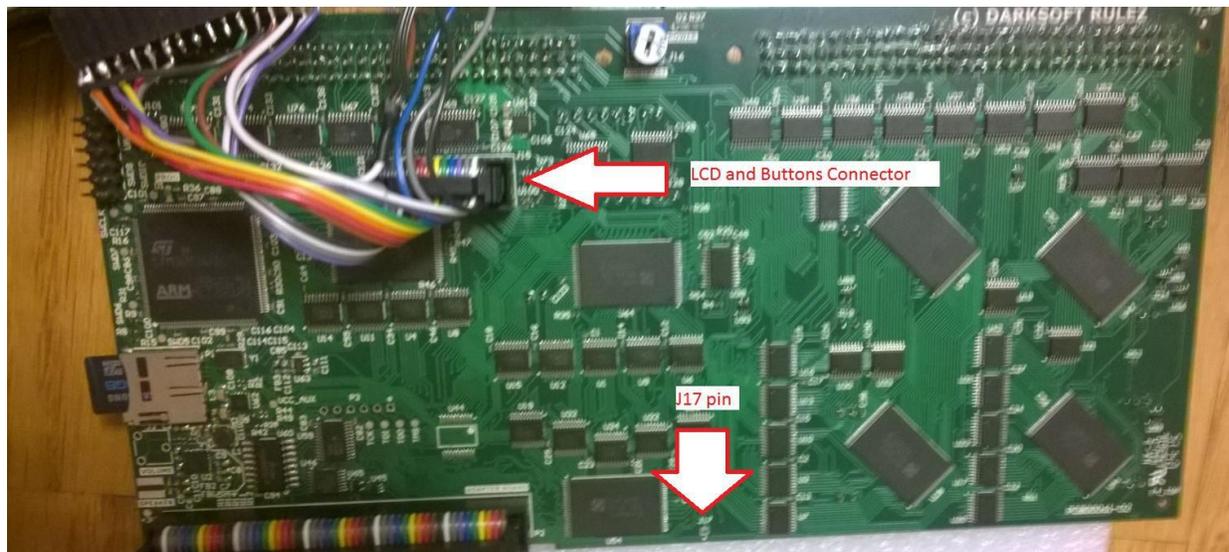
If you have a B board revision 5 or above, you will be ok with a PAL G or a PAL F+Cable.
If you already have a PAL F, you need to lift pin 7 of PAL 3 so that doesn't go into the
socket and doesn't make contact and solder a jumper wire into the pin J17 that I explained
for revision 3 and 4.

See pictures here and below:

http://ikotsu.blogspot.com/2010/01/progear-capcom-cps2-cavecapcom-2001.html
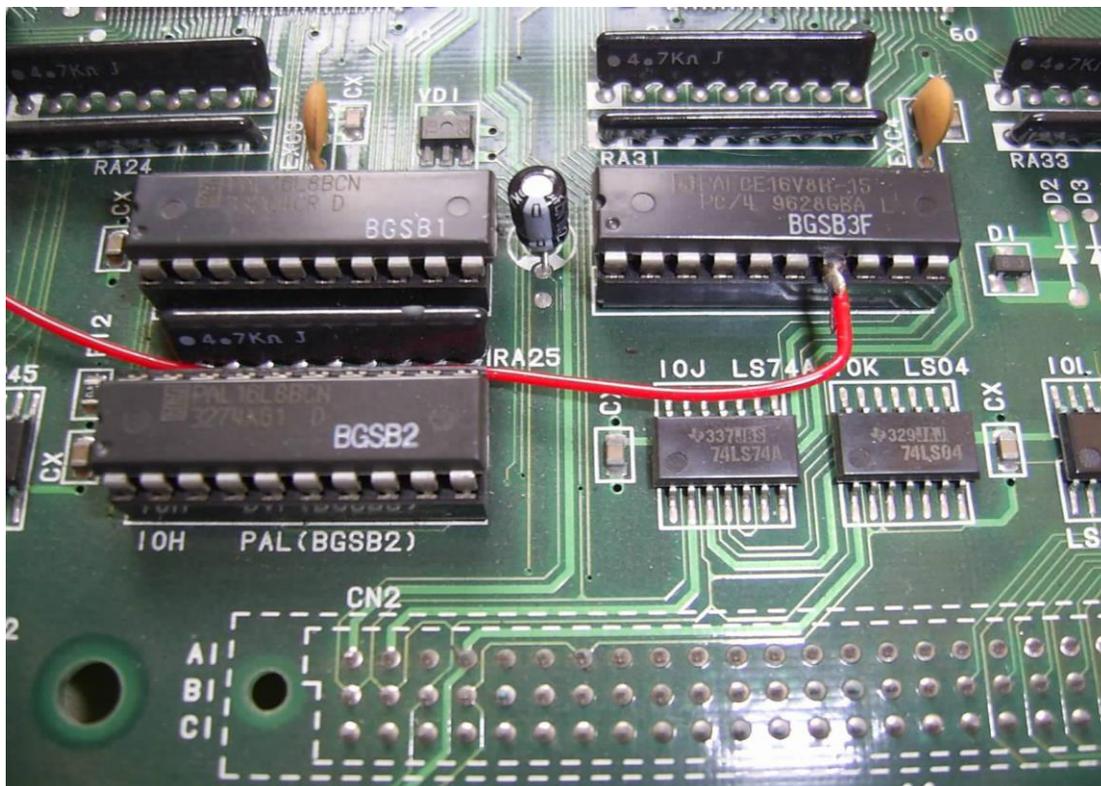
FOURTH STEP

Once your PCB is romless and you have the right jumper and PAL configuration, you can now proceed to install the two PCBs that you should have received with your package. The two PCBs will end up joined together by a small 3$_{rd}$ PCB.

IMPORTANT! When installing the PCBs you should do it gently, making sure first that everything is properly aligned and then start pushing gently until all the pins are inserted inside the ROM socket. It should look like this:

This is what you'll receive.

First, proceed to install the smaller PCB. Check that the PCB is placed as in the picture below. First just lay it, to make sure all the pins are in the right place.
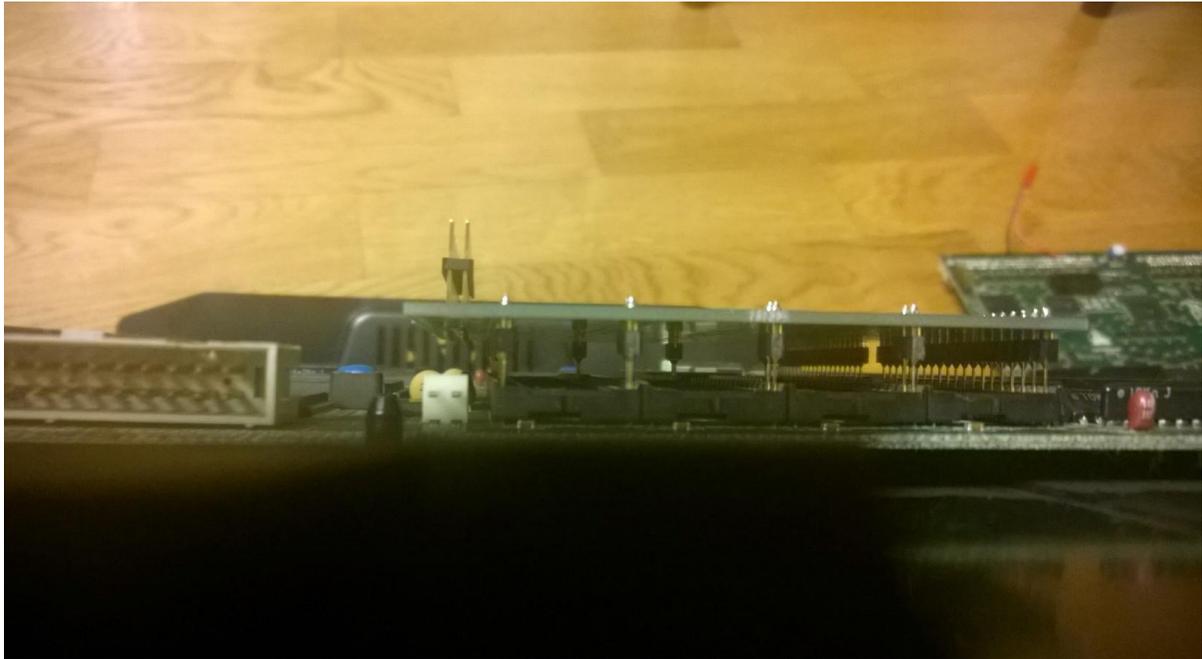
Now, start pushing them gently by each corner and also in the middle, look at the pins while you push to make sure everything goes gently in the right place and you don't bend any pins.

It should look like this once installed:
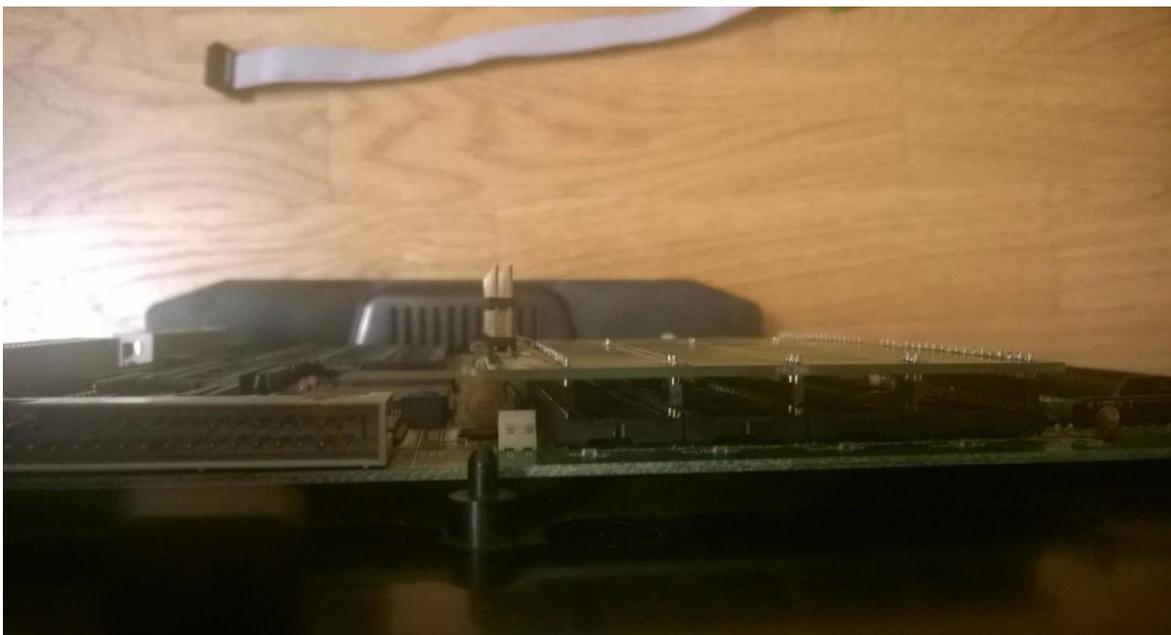
Now you can proceed to installing the big PCB. First make sure that it has arrived undamaged to you. It is important that no pins have been bent. Notice that only the top of the pin should go inside. This is the part marked in red.

The first thing is to align the white connectors with the ones in the B Board like you can see below. Again you need to carefully look at the pins while you insert them in the Eprom socket to make sure that everything is aligned and the pins insert in the right place.
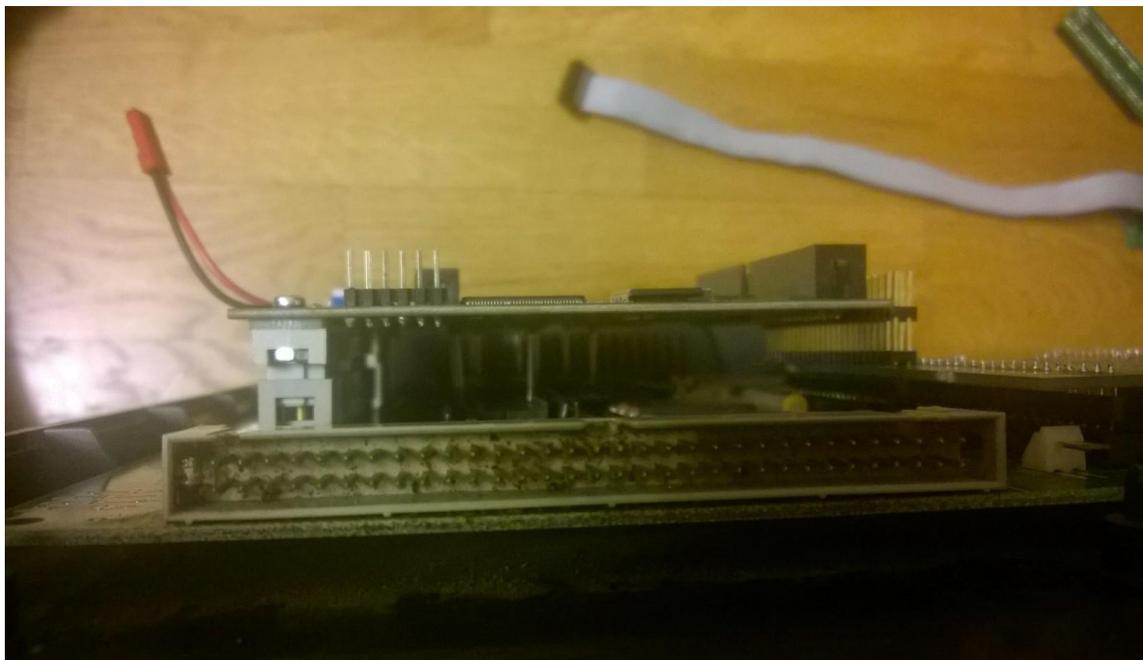
Now start pushing gently the PCB into the sockets making sure that all of them fall into the right place.If unsure remove it and insert again. IT will look like this:
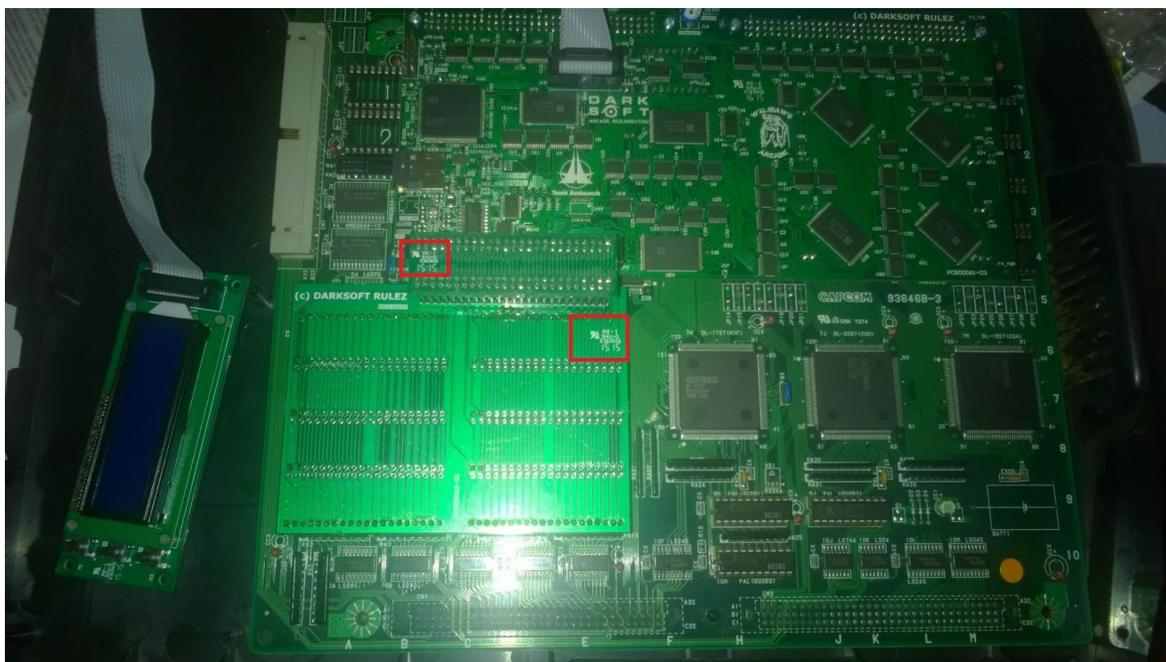

Your kit should now look like this:

Now you can proceed to insert the tiny PCB that joins these two PCBs together.

Make sure that the ЯU sign is facing upwards as it's shown in the picture below:

Your kit also includes an LCD screen module with 3 buttons to choose which game to load. The buttons and the cable are connected to the bigger PCB's 14-pin socket and you can take that cable outside the B Board case through the register opening in one of the sides. You will be able to change games with the lid closed.

Now using left, right an OK buttons you can choose which game to load. You'll see a progress bar and once the uploading process is complete, you'll see a message prompting you to reset. Now power cycle the cabinet and your recently loaded game will boot.

IMPORTANT: Due to a last minute change, the lid will not close unless one of the legs of the B Board lid is removed. I know we stated that it will close as it is, but we were afraid of the consistency of the PCB with an opening there. We apologize for that.

If you want to close the lid, you just need to cut one of the supporting legs of the lid. As you can see in the pictures below. You can use a knife like this one. Make sure you do the cutting gently and without rush or you can break the lid.

So it will end up like this:

All units sold before **October 2017**, came with a firmware installed that provides auto reset feature but no key writing yet. To make it work you needed to solder a cable between the SWD5 "dot" in the CPS2Multi which can be seen below and the pin B28 of CN1 connector OR pin A29 of CN2 connector OR pin #5 of CN9 connector, all of them located on the B Board.

All units sold after **October 2017** come with a firmware installed that allows using original untouched romsets. In order to use them, you need to solder 4 wires that will program your B Board with the needed key in each case and will automatically reset the system.

We implemented the key writing process discovered and made available thanks to Edcross from **arcadehacker.blogspot.com/**

Programming of the key is done with 4 additional signals called DATA, CLOCK, SETUP1 and SETUP2.

SWD5 is not being used anymore. Now you have to use for both reset and SETUP2 (it's the same signal) the pin in SWD7.

IMPORTANT!!! Follow the instructions to connect DATA, CLOCK, SETUP1 and SETUP2 as stated below and corresponding to your version of B Board only:

Pinout for board revisions 93646B-3 and 93646B-4

CN2 interface pins:

DATA #2→ CN2 A32
SETUP1 #3→ CN2 A30
CLOCK #11→ CN2 A31
SETUP2 #12→ CN2 A29
Pinout for board revisions 93646B-5

CN9 interface pins:

DATA #2→ CN9 #2
SETUP1 #3→ CN9 #3
CLOCK #11→ CN9 #4
SETUP2 #12→ CN9 #5

Pinout for board revision 93646B-6, 93646B-7 and 97691A-3

CN9 pins:

DATA # 2→ CN9 #2
SETUP1 # 3→ CN9 #3
CLOCK # 11→ CN9 #4
SETUP2 # 12→ CN9 #5

Here is a short video explaining the procedure:
https://www.youtube.com/watch?v=gqQjdd1Dg90

If for any reason you need to update the firmware on your CPS2 Multi from a previous version to the latest one supporting key writing, take into account the following WARNING:

DO NOT INSTALL THE WIRES UNTIL AFTER UPDATING THE FW!!!! IF THE WIRES ARE INSTALLED WHILE TRYING TO UPDATE THE FW YOU WILL CORRUPT THE BOOT-LOADER ON THE KIT AND YOU WILL HAVE TO REWRITE IT USING A DISCOVERY!!!

It should look like in the pictures below:
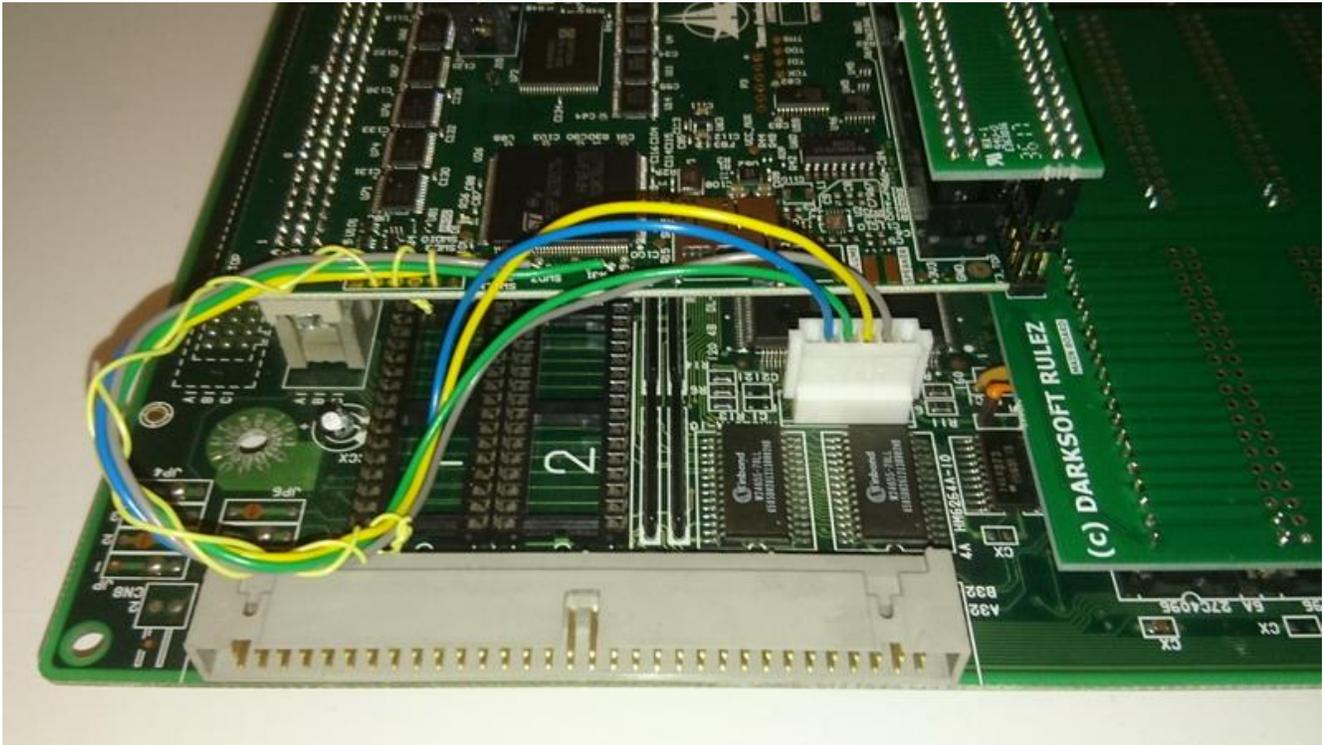
4 wires connected to CN9
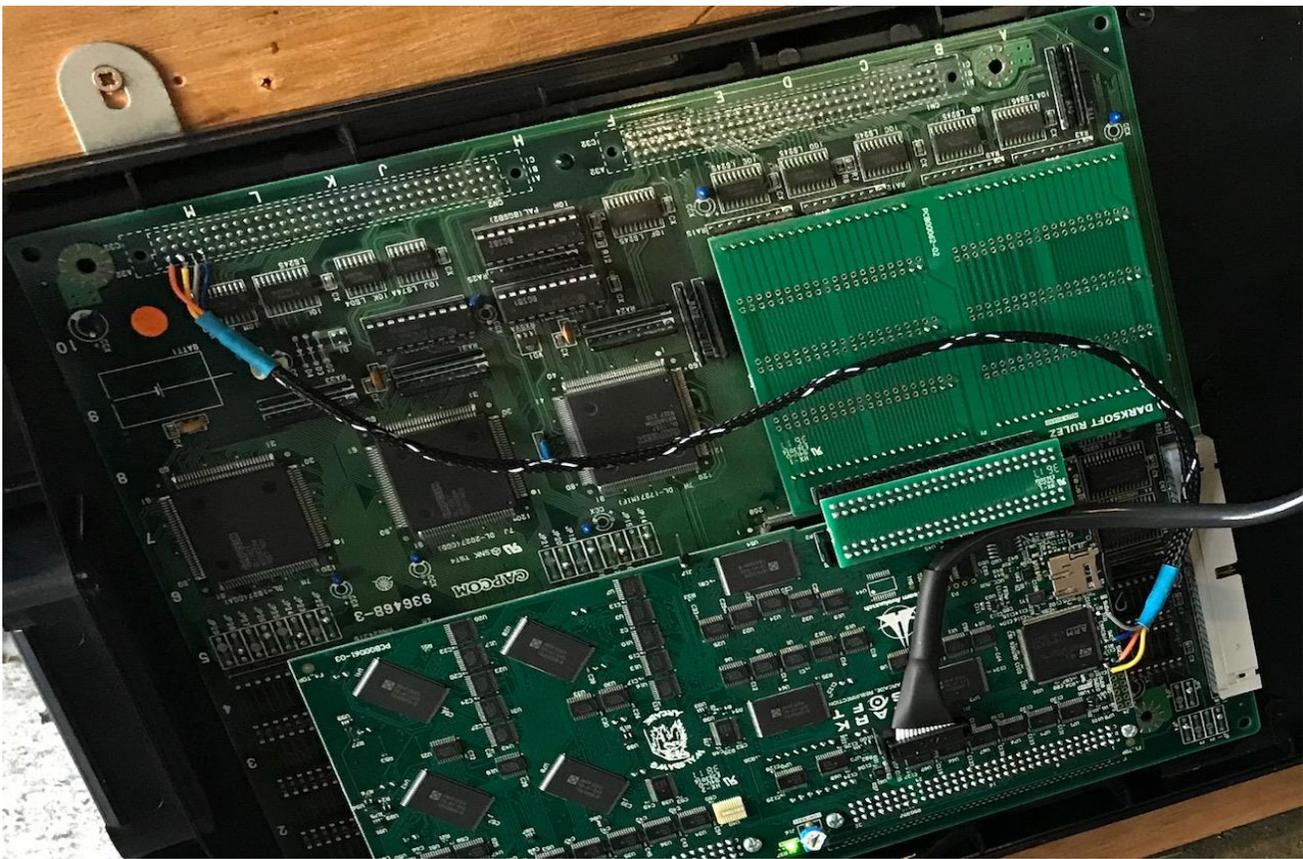
4 wires connected to CN2

Running games:

Thanks to the key writing feature, we can run original untouched roms. Each folder game should have a file called "key" which has the key that corresponds to each game. The firmware will copy the latest programmed key on the root of the microSD so don't delete files like NOW_PLAY NOW_KEY, etc. please

For the suicided versions like the ones from Team Avalaunch, just place a 20bytes file full of FFFFFFF in the game directory. Using this file: https://www.arcade-projects.com/forums/index.php?attachment/6392-nobattery-zip/

Thanks to the key-writing feature, you can use this kit to resurrect dead CPS2 B Boards. Simply install a battery and load any game that you want but put in file "key" the key that you want the cartridge to be programmed with. Note: Do this if you plan to remove the kit and use regular Mask ROMS.

Even better news is that you don't need a battery for this to work, it will write the game and the keys and run everything regardless of the fact if you have a Battery installed or not. More information can be found here: https://www.arcade-projects.com/forums/index.php?thread/4342-new-cps2-multigame-firmware-with-key-writing/&pageNo=1

Now you should prepare your MicroSD to work with your kit.

You need to get the latest romset from your usual source.

SmokeMonster has made a Roll-Up Pack. Google for it. I.e. "SmokeMonster CPS2 Roll Up"

Make sure you use a branded MicroSD, preferably Class 4 from Samsung, which work very well. See below:

Most of the issues with the games not loading come from using a cheap card or not properly formatted. We don't recommend to use a Mac to copy the files, but if you do, make sure you

run the program "dot_clean /Volumes/sdcardvolumenamehere" which gets rid of the hidden ._ folders MacOSX creates. After that eject the card "to be used with windows".

If even after that you see a yellow or purple screen only after loading, you probably need to reset the board properly. Make sure you make a short-circuit at position EXC5 where there are 3 pins on the B Board, EXC5 is close to where the battery is but on the other side. Obviously do this without powering the B-board.

I trust this kit will give you hours and hours of fun, so enjoy!

Darksoft and Mitsurugi-w