C-One Cartridge Port BA Modification

Due to a design Flaw on the original Board Layout, the Cartridge Port cannot be controlled properly from the FPGA the C64 core runs on. Fortunately, this can be fixed with an easy modification.

In detail, it seems like Jeri planned to control the BA (“bus available”) signal through the config CPLD (Altera EPM3032), but did not take into account that this takes logic and time on the 1k100 FPGA. In an attempt to have a clean signal, she used source and target termination on the signal, so separation of the config CPLD is easily done by removing the series resistor R72.

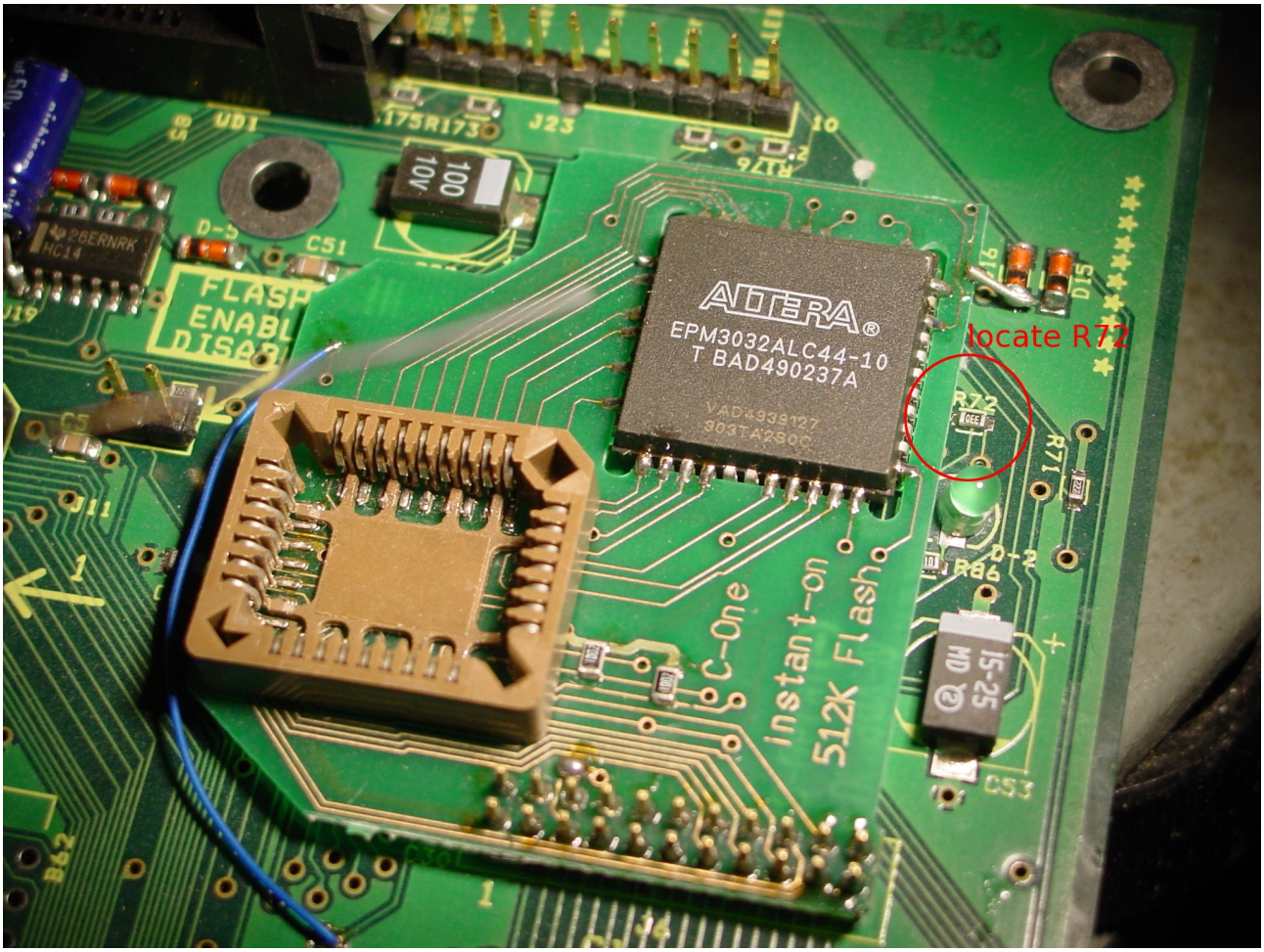
There's a short video on the C-One website that shows how to do the whole mod.

Preparations

Remove your C-One board from the case that it's currently in. You will need a soldering iron, solder (preferrably NOT lead-free, as this makes your life a lot easier), and a small wire of about 10cm length (4 inch).

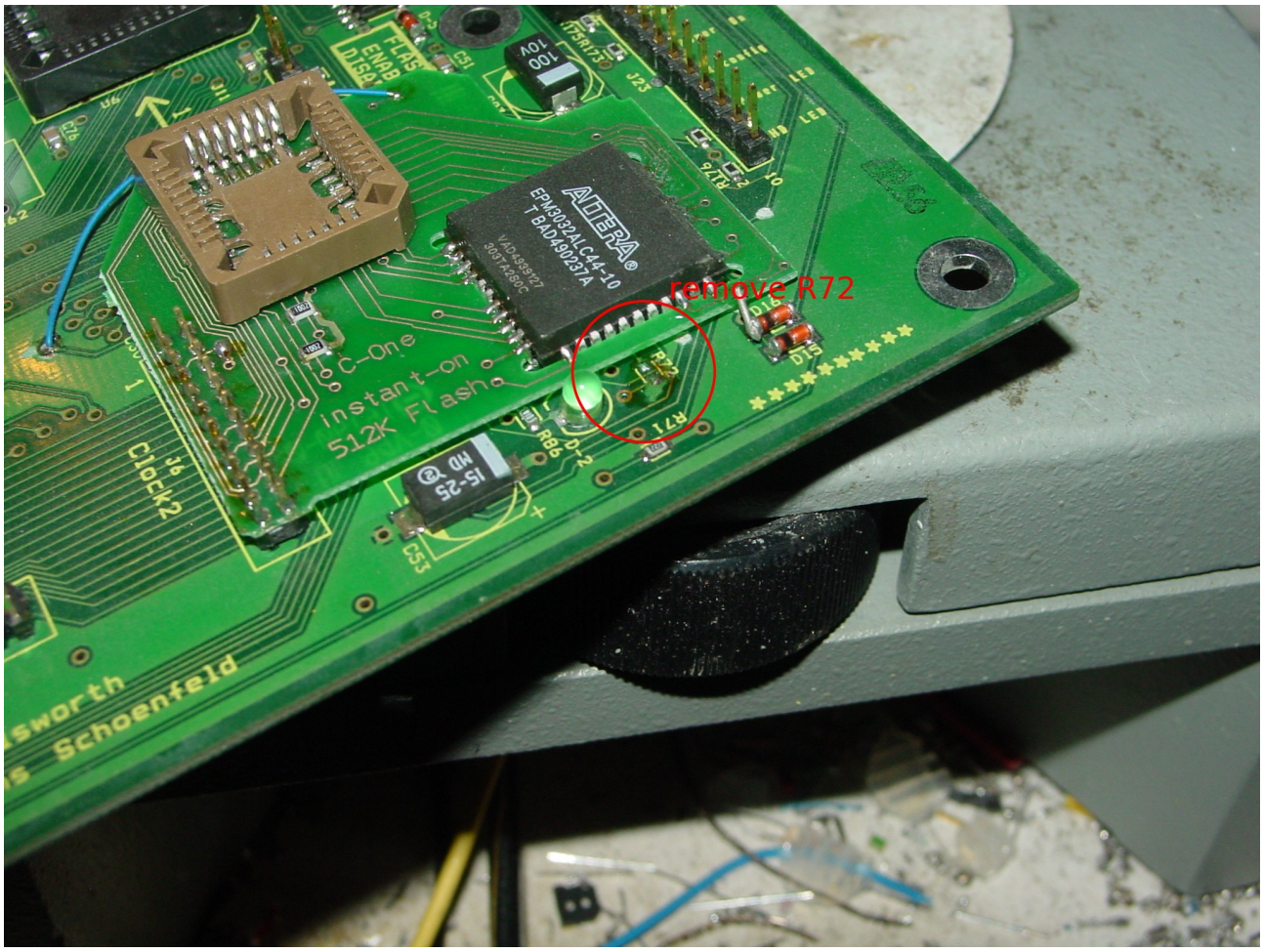
If you don't use a soldering iron very often, please practise. Take an old PC board or add-in card and start removing resistors or capacitors. Once you have been successfol on a few parts (maybe 10 to 20), you should be good enough for removing the resistor from your precious C-One.

Step 1 – locate R72



R72 is located near the green LED, very close to the edge of the “instant-on” board. The instant-on board is located very close to the connectors for the on/reset/reconfig switches. The above picture shows an instant-on board with the flash chip removed – it is not necessary to remove that chip, we just took a board without the chip as a photo model.

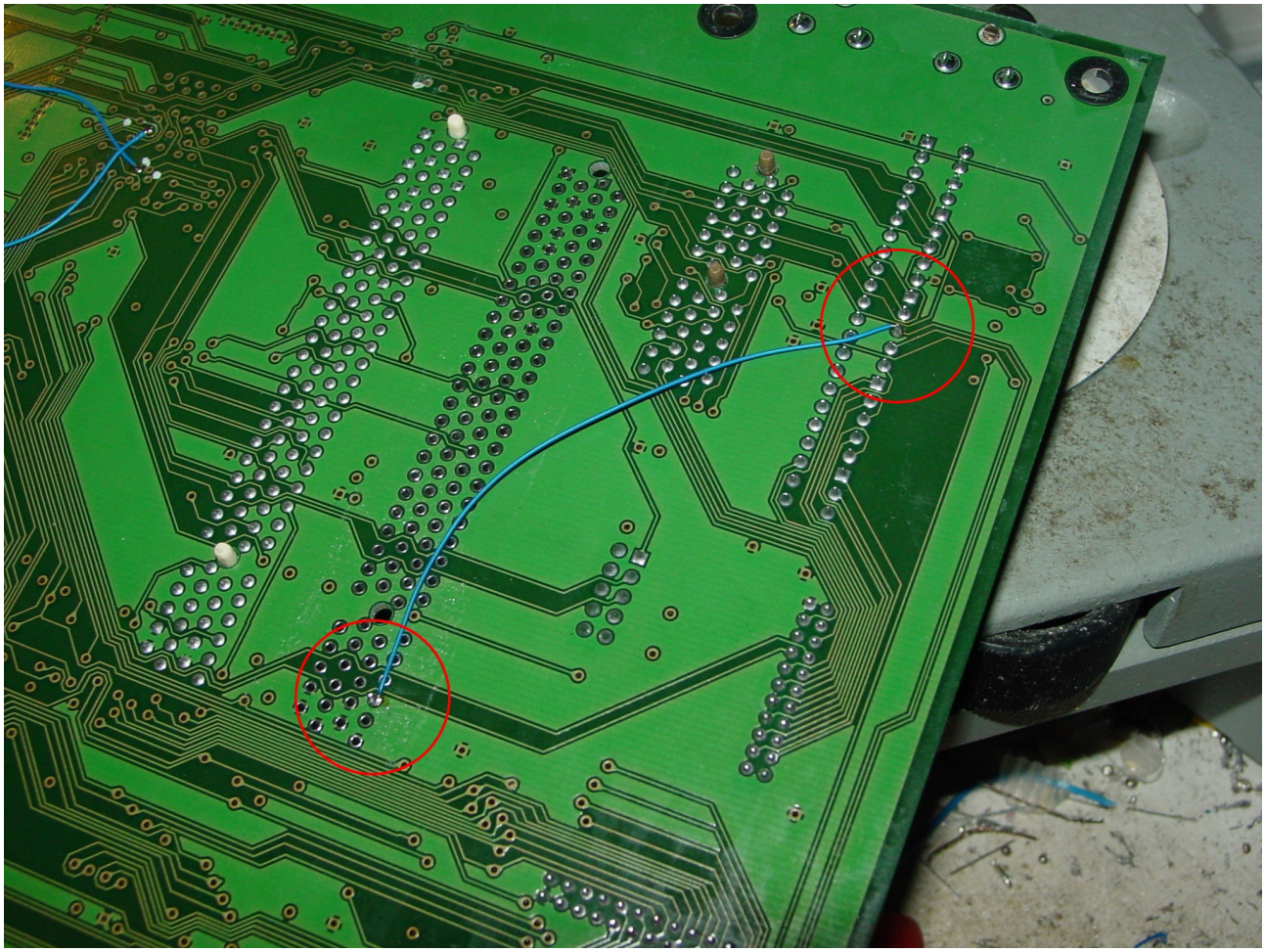
Step 2 – remove R72



To remove R72, place the soldering iron at an angle next to the resistor so you will heat both ends of the part. Add some fresh solder, this will make the job even easier. Pushing a little to the side, the resistor will hang on the end of your soldering iron. You will not need it any more, no need to save it.

Make sure to clean the two solderpads - they should not have too much solder on them, the two solderpads should be clearly separated.

Step 3 – connect PCI Slot and Cartport



Here you see the bottom side of the C-One. The BA signal is located on pin 12 of the cartridge slot. Count the 12th pin from the top right in the picture. CAUTION: Jeri's schematics use a different numbering scheme for the cartridge port, so her schematics show pin number 24 for the BA signal. It's correct for her logic, but not consistent with the documentation out there.

The other side of the wire goes to pin B58 of the PCI slot. The picture above shows the location: Count pin number three from the bottom right of the slot solderpads.

Last Words

Credits

Hardware Modification developed by Peter Wendrich and Jens Schönfeld

FPGA64 Core developed by Peter Wendrich, available at
http://www.syntiac.com/fpga64.html

Fine print

This hardware mod is not for beginners. Although the task looks simple, you can easily destroy your board if you don't know what you're doing. If you don't feel 100% sure, please leave this up to someone who has experience with things like this. We don't assume any liability for damages you are doing to the hardware. Damages that are caused by wrong modifications are not covered by warranty.

For updates and further information visit http://icomp.de and http://c64upgra.de/c-one/

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