

Chameleon De-bricking

Re-programming the microcontroller

Note: It is very unlikely that this kind of update must be done in the field. It is only documented for completeness. It's the worst-case scenario - please read and decide for yourself if you'd be up to the task should it become necessary. If you do not feel skilled enough for this kind of update, please do not buy the Chameleon just yet.

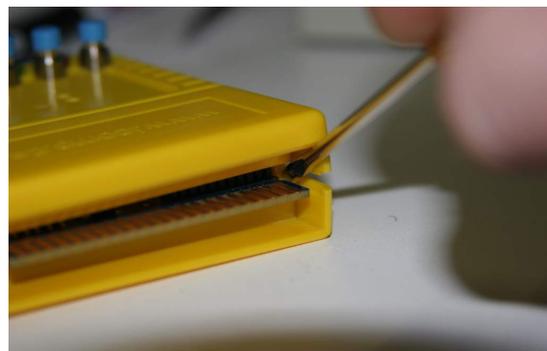
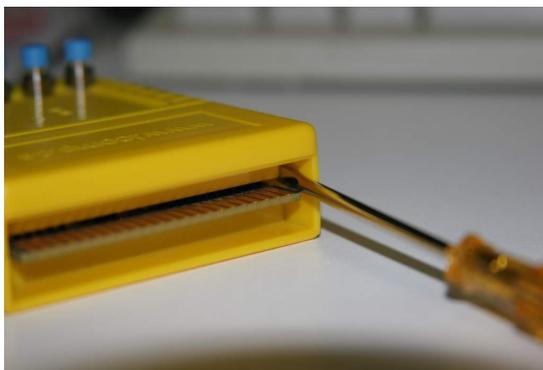
Should the microcontroller require an update, you will need the “FLIP” tool from the Atmel website. FLIP is a Java application available for Windows and Linux. If you run under Linux, remember to run the tool as “root”, otherwise it will not get access to the USB port. You can easily find FLIP using Google - URL not given here, as links might change in the future. FLIP is the same for a large family of microcontrollers, the tool is the same for all of them.

If you run under Windows, you will need a FLIP driver. New Windows versions (Vista, 64-bit versions) either require some expert settings, or they require a signed driver. Download the signed driver from our website and install it. Also, you may need to download and update Java. Even if Java does not prompt you to re-start the computer after an update, it may be required. Especially if FLIP exits with a nullpointer error message, just restart the computer, and it'll work.

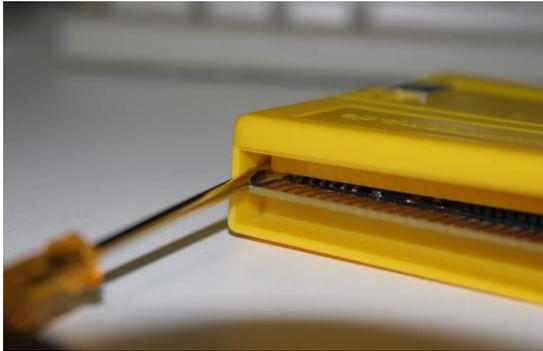
Start FLIP - it will come up with an error message that a device was not found. This is expected behaviour. Click OK on that requester. Now click on “settings” and select “preferences”. Within the preferences dialogue, select the rightmost tab “connect/closing”. Tick the box “Auto-connect”, then click on OK.

Now open Chameleon - it may look difficult, but if you know where to lever it open, it's really easy. All you need is a flat screwdriver. Please follow the steps given here, don't change the order of the steps, because you might break the case otherwise!

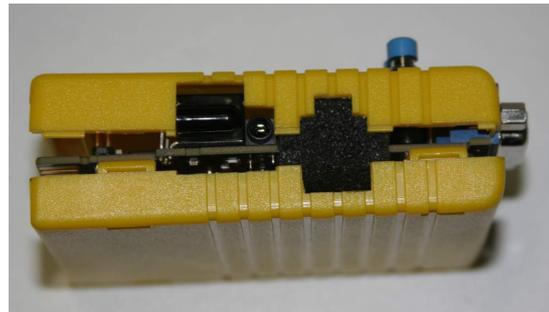
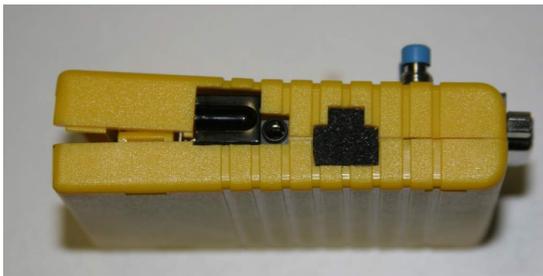
Use the flat screwdriver as a lever. **Be sure not to touch the Chameleon board, only the case must be touched!** There will be no warranty for scratched boards. Use the zoom-function of your PDF viewer to exactly see where the lever needs to be placed.



Next, use the screwdriver on the left side of the Chameleon case. Again, be sure to only lever the case, not the board!



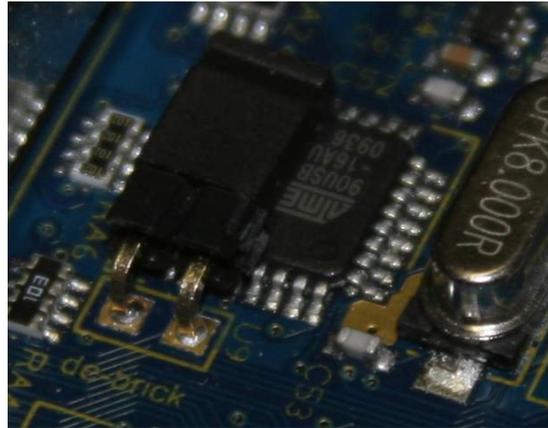
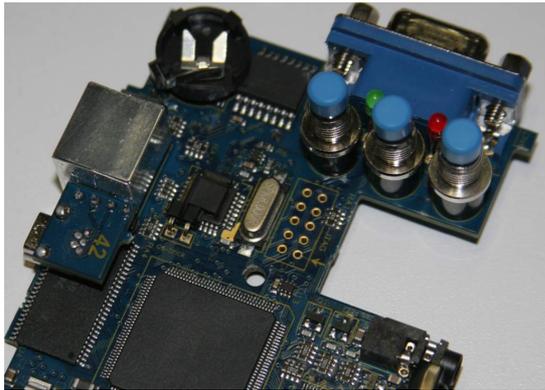
With the opening in the Chameleon case for the mini-DIN connector, the left half of the case top is fairly weak. It is unlikely to break if you do not use extreme force (polycarbonate is very flexible), but it's still a good idea to be as gentle as possible. We therefore recommend to open the right side of the case first:



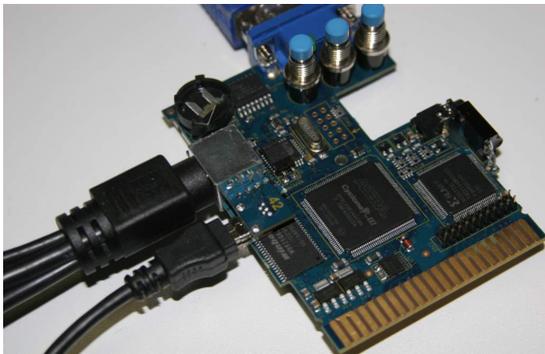
Remove the bottom by tilting it away; the left side (weakest side of the top) will now come off fairly easy, almost no force is required. Remove the foam from the case and keep it in a safe place. The foam on your cartridge may look different.



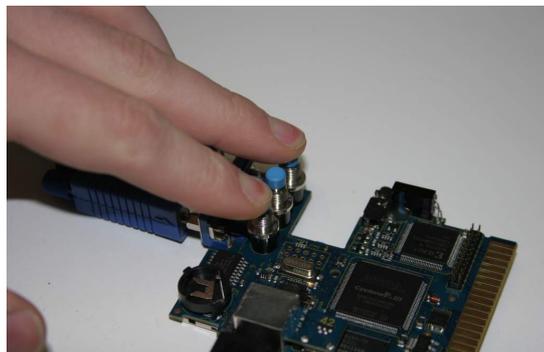
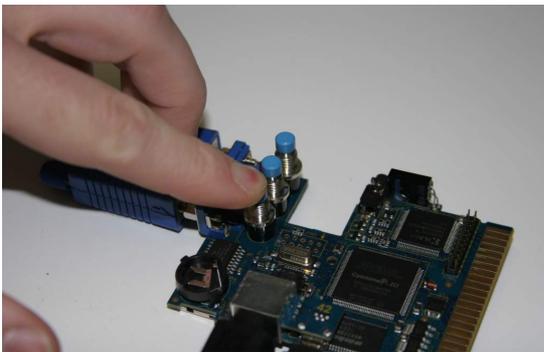
Now locate the de-brick jumper of Chameleon and close it:



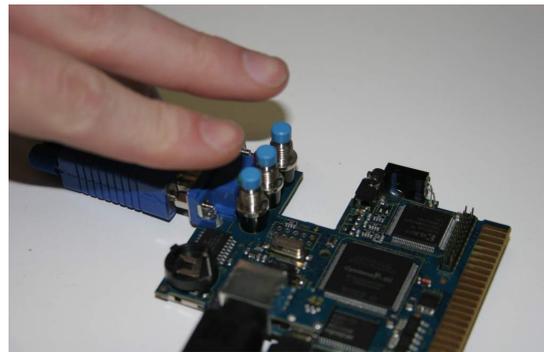
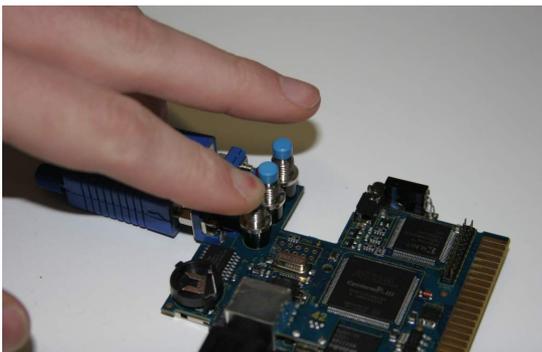
Now make two USB connections to your PC and switch on the PC. The USB connection of the breakout cable provides power to Chameleon, and the mini USB connection is your data connection:



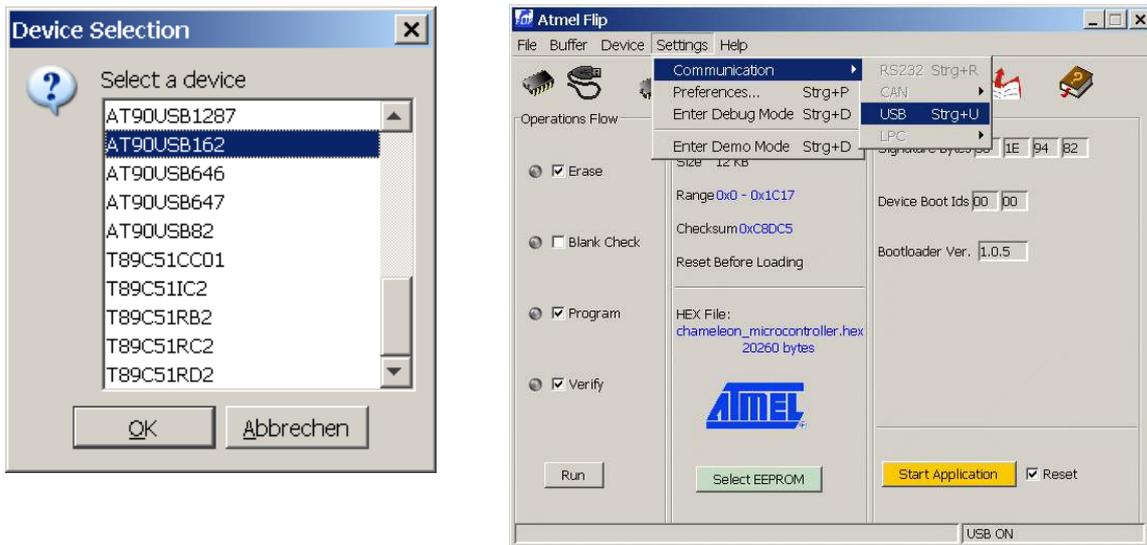
Now place the microcontroller into de-brick mode with the following combination of button presses. Press and hold the menu button, then press the reset button:



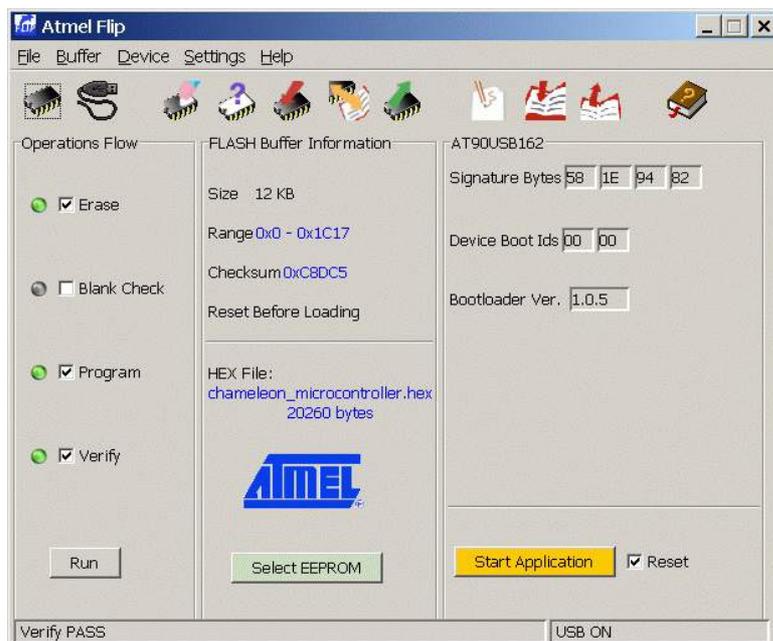
Then release the reset button, but keep on holding the menu-button. As the last step, release the menu button:



The microcontroller is now in de-brick mode and the FLIP tool will now find it. First, select the processor type AT90USB162, then select Settings->Communication->USB:



Now load the microcontroller hex file by clicking on file->Load hex file. The final step is to click on the “Run” button within FLIP (at the bottom left of the window) and watch the program do its magic. After programming the microcontroller, FLIP will indicate the successful steps with a green light next to the action tags:



Note: The checksum may be different for a possible update.

That's it - the microcontroller is now up to date, and you can leave de-brick mode by powering off and opening the de-brick jumper. Before you can make use of the new microcontroller software, you may need to update your version of ChaCo (the Chameleon Control software), and you may also have to update one of the flash slots. Please read the respective instructions for ChaCo for those steps.