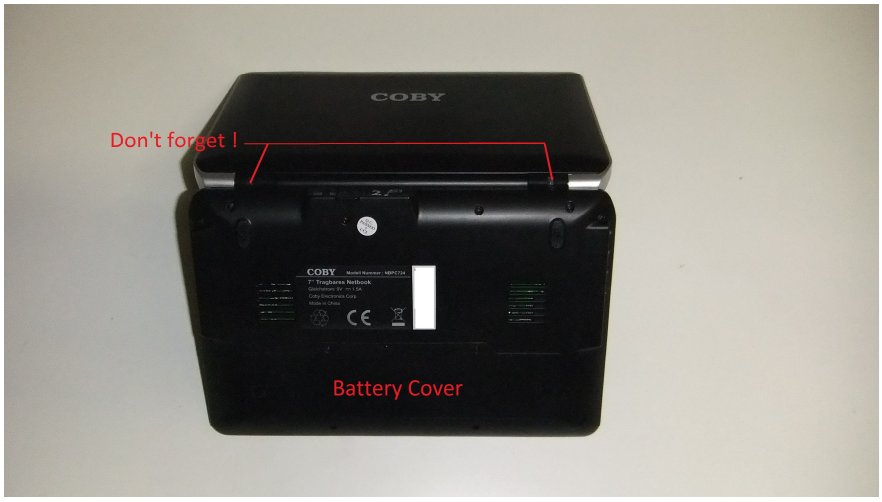
Access Root Shell in Coby NBPC724

This manual explains how to connect the Netbook to a RS232 interface of a PC and gaining root access.

Disassemble

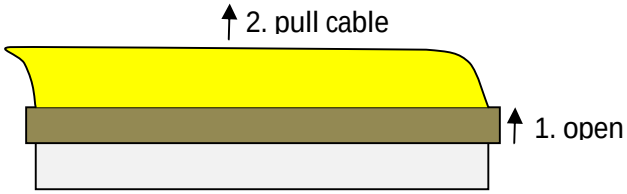
Remove all 14 screws at the back and open the battery cover.



Unplug and remove the battery. It is fixed with a velcro, so you must pull a little.
The velcro sticks accross some parts of the upper housing. Cut it with a knife to seperate them.

Remove the keypad.There are three little hooks at the top. Use a knife to press them in.

Unplug the cables of keypad, loudspeaker, touchpad,... It's always the same procedure:



Open the lock mechanism by pulling the slider in direction of the cable. Then the cable can be pulled out without any effort. When reassembling, you must hold the slider open while you inserting the cable.

You don't need to unplug the cable to the Power LED board.

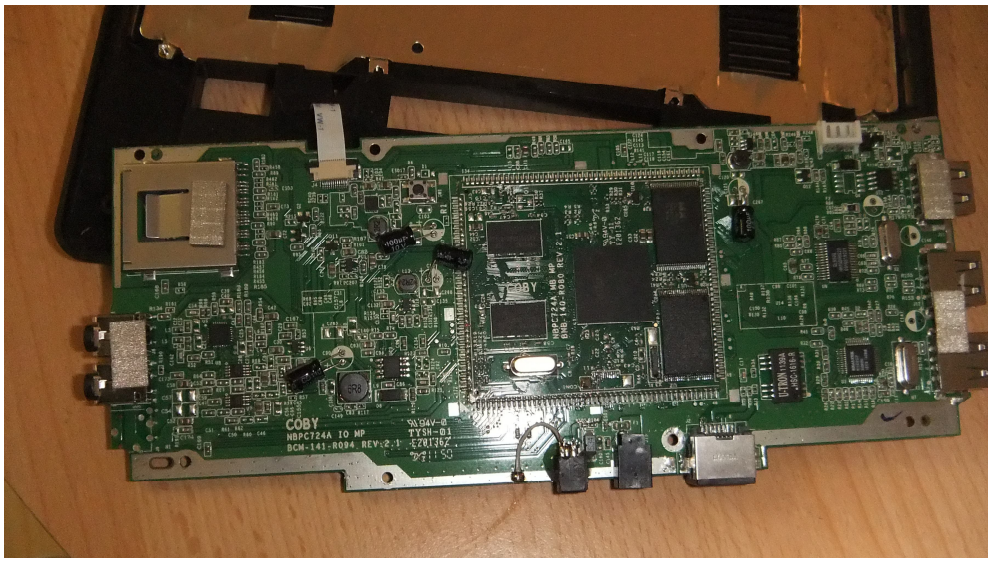
Begin at the touchpad to remove the upper half of the housing. Normally the fingernails are good enough. Otherwise use a knife. You need a little more force at the left and right side, there are some little hooks.

Then open the screen as wide as possible. Be sure that you removed all screws. The cover is snapped in very firm at the hinges. You need some force, but nothing will break ;-)

Unscrew the display and the main board. There are 4 screws at the display and only 2 screws at the front side of the PCB. They may be hidden by some conductive foam stickers.

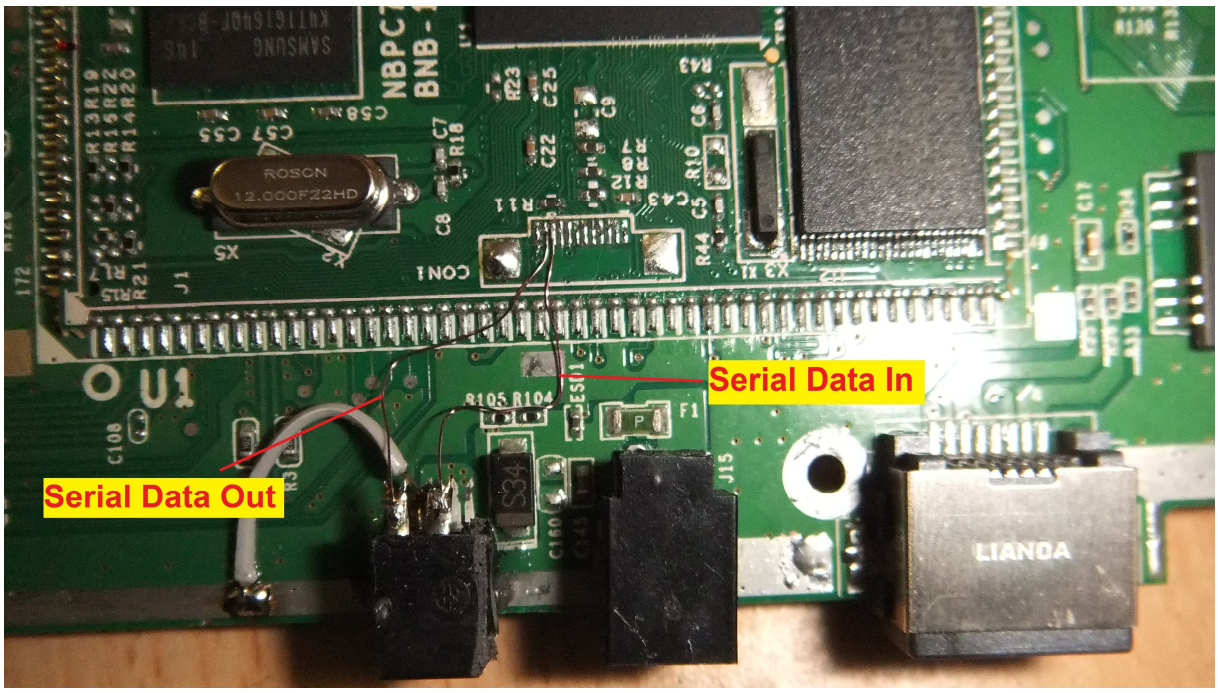
Connecting the RS232 wires

Now flip the PCB upside down.



The processor and memory sits on a separate little board in the center.
During my internet researches, I found that this design is pretty much the same for may products based on the IMAP210 CPU.

The serial communication interfaces is located at a connector pad on the CPU board.



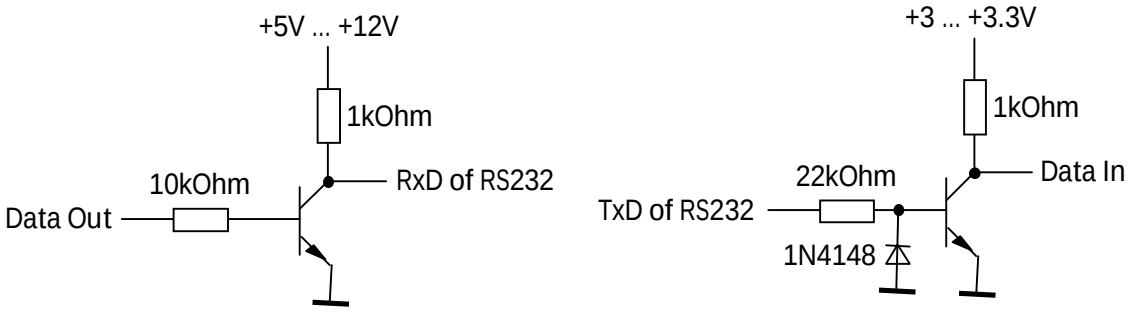
This is the hard part of the project. The pads are very very close together. The best way is, to use paint isolated copper wires as used for transformers, coils, etc... I added a connector so that I always have access.

Counted from left to right:
Serial Output (RxD on RS232 connector on the PC side) is pad 2.
Serial Input (TxD on RS232 connector on the PC side) is pad 3.

IMPORTANT : The signals of a standard RS232 are +/- 12V and would destroy the CPU !

The CPU uses 3.3V, so we must do some signal forming....

The simple version are some Transistors. Some very old fashioned RS232 Interfaces may not like that, because the "low" signal goes only to GND and not to negative voltage.



Transistor is a Standard NPN Silicon Transitor like BC546.

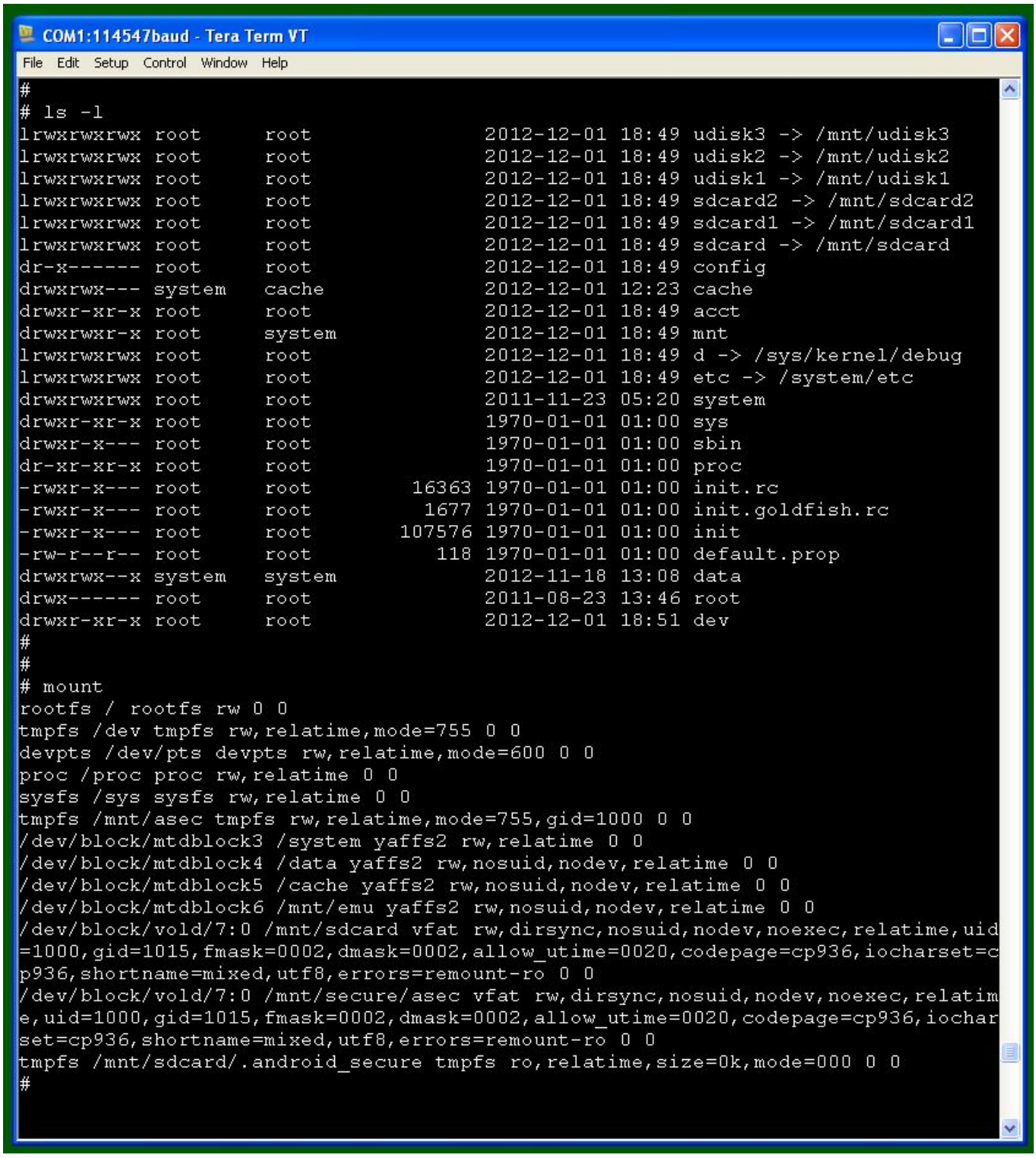
The 100% safe way is to use RS232 converter like the MAX3222. Be sure that you are using the 3V compatible part.

Get Terminal to work

You can use any standard free terminal software. The good old Hyperterm would also work, but you cannot enter exact baudrates there. The communication parameters are 114547 Baud, 8 Data Bits, 1 Stop Bit. The standard 115kBaud may work….

When you connect the NBPC 724 to the Terminal and switch it on, the Terminal shows a typical Linux Startup and some debug messages. Just wait until the main screen appears. Then hit the enter key on your PC, the root prompt # appears. Now you are in ☺

The debug messages don't stop and it is sometimes nasty to enter commands. But the messages don't interfere with the commands, just continue typing. Better is, to "prepare" the commands in a text editor and copy-paste them into the shell.



Some Hints

Since this is a root shell, you can do whatever you want: Run homebrew code, install new software or a new OS. The apps are located in /data/app. System apps are in /system/app. The “su” command is in /system/xbin. The sdcard is in /mnt/sdcard1.

To get write access to the system partition, enter mount -o remount,rw -t yaffs2 /dev/block/mtdblock3 /system

There’s no CP command. You can use cat Source-File > Destination-File. Don’t forget the ‘>’.

Ou can download the usual Android supervisor packages, put them on a SDCard and copy the contents to the folders /system/xbin and /system/app. Don’t forget to set the file permissions with chmod.