How to backup and restore SKR 1.4 /turbo & SKR 1.3 boards Using a USB to TTL Adapter:

Guide to backup and restore SKR 1.4 / turbo (1.3 also work) via UART by USB to TTL adapter. Useful to try to fix corrupted boot loader and no update from SD problem or simply backup. I, GadgetAngel, have tried to find other ways of doing this with the LPC1768 or LPC1769 and the only method that works is using the embedded boot loader and USART0 communication. I could never get an ST-LINK-V2 clone to work!

(I'm not responsible for any damage, do so at your own risk)

ORIGINAL URL: https://github.com/bigtreetech/BIGTREETECH-SKR-V1.3/issues/346#issuecomment-754120640

Sineos commented 15 days ago:

Just for future reference: Flashed a SKR 1.4 Turbo with @ardiehl Bootloader, using a USB to TTL adapter:

Things needed:

- USB to TTL adapter, e.g. https://www.amazon.com/dp/B075N82CDL
- Some Jumper wires, e.g https://www.amazon.com/dp/B01EV70C78
  - female to female for the USB to TTL
  - female to male to conveniently contact the pin P2.10 to get the board into ISP mode
- @ardiehl bootloader hex (attached to this post, or build it your self)
- Flashmagic

Procedure:

1. Power the board via USB or 12V / 24V
2. Contact the USB TTL adapter as shown in the picture (cyan arrows)
   - RX of the adapter to TX on the board
   - TX of the adapter to RX on the board
   - GND to GND
3. Contact the SMD resistor (R28) to GND of the board (dark blue arrows), e.g. middle pin of an endstop (here the female to male jumper cable comes in handy). This will connect to the ISP_BOOT mode pin P2.10 (contact- Nr3).
4. Reset the board while holding the contact (Nr. 3)
5. Shortly after releasing the Reset button also remove the ISP connection (Nr. 3)
6. Start Flashmagic
   - Chose the @ardiehl hex file

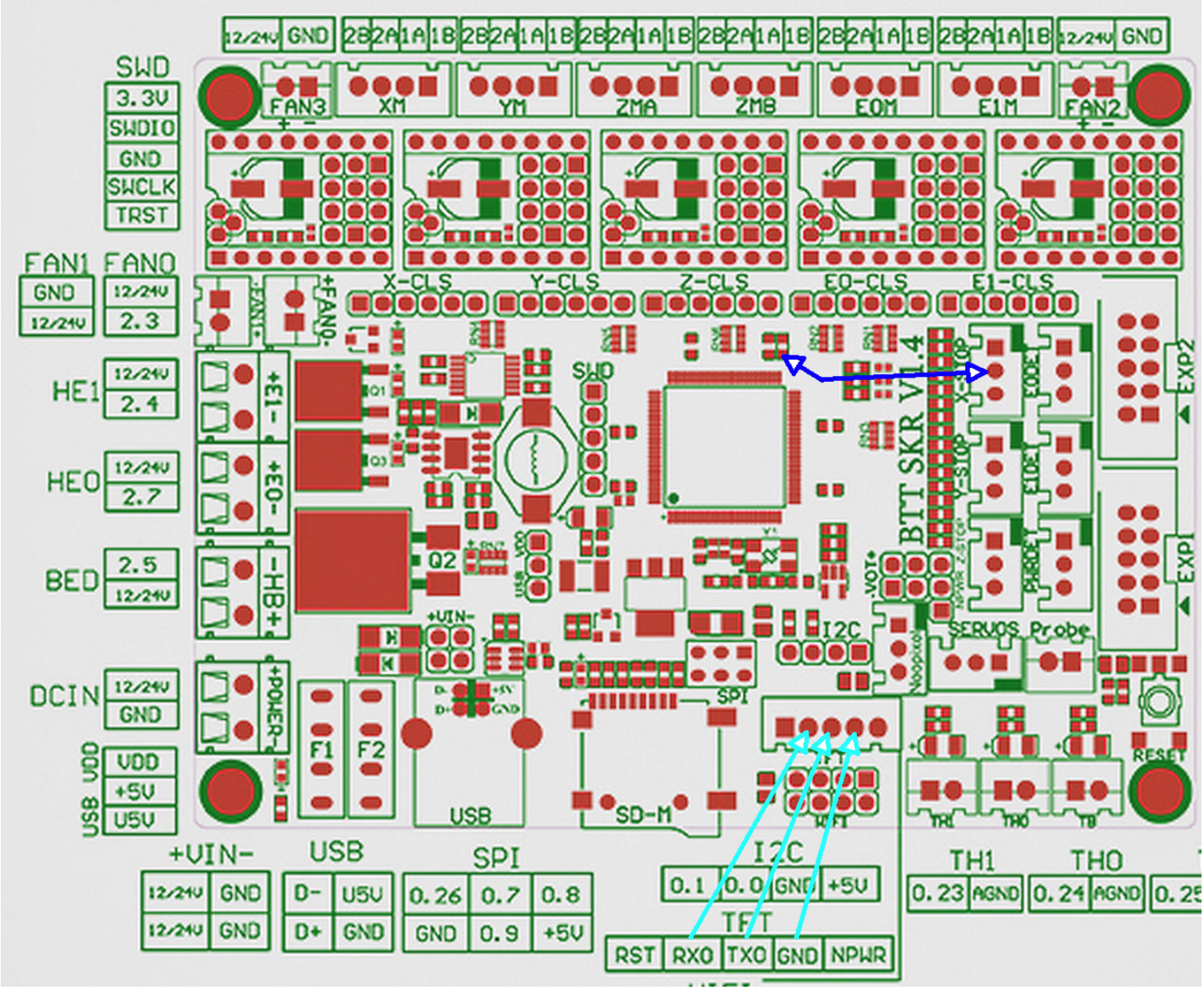
- Set the correct COM port for your USB to TTL adapter (look it up in the windows device manager)
- Set the correct chip type (LPC1769 for SKR 1.4 Turbo)
- Set Erase to `Sectors used by file`
- Press start

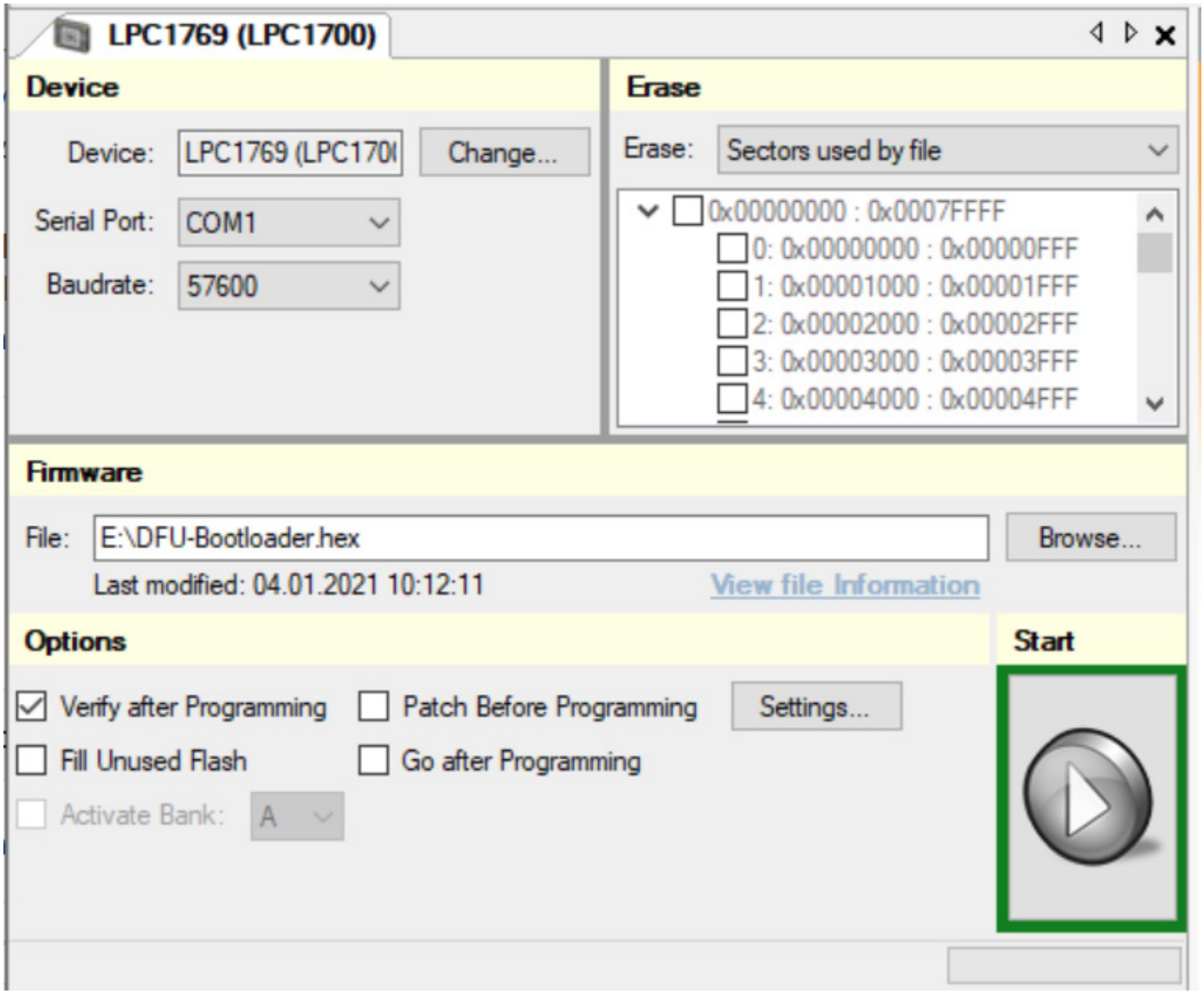
7. Wait until finished, then reset the board
8. Flash new `firmware.bin`, e.g. via SD card upload or using the new bootloader's direct flash capabilities

Flashing via STLink v2 did not work for me, neither from linux shell, nor via PlatformIO **but the Flashmagic way was surprisingly painless.**

Bootloader Hex (unzip to use):

DFU-Bootloader.zip



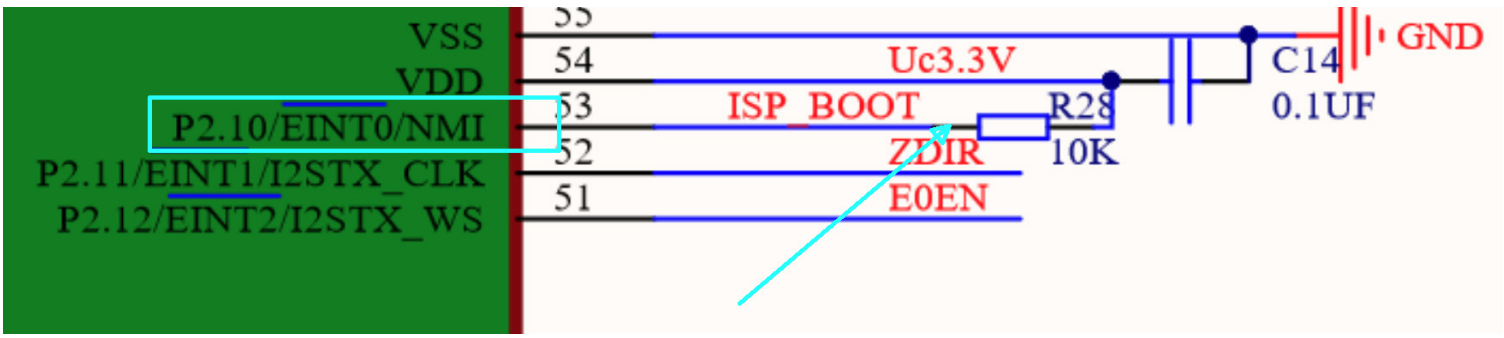


Edit for SKR Board 1.3:

For SKR 1.3 simply connect AUX-1 in Step 2 and use (read short) the BOOT Jumper pins to achieve the same as in Step 3 to 5.

IMPORTANT: It needs further explanation about ISP_BOOT PIN needing to be held to low during a board reset so the embedded boot loader will become active:

- To get the chip into the ISP mode you need to pull the pin P2.10 to GND during reset
- The P2.10 is easily accessible via the bottom of the SMD resistor
- GND is easily accessible via, e.g. the middle endstop pin



- So you need to make this contact between GND and P2.10 and hold it, reset the board and then quickly after releasing the reset button remove the contact.