

Doing below actions might “brick” or really brick your skr 1.4;

All credits to the devs of the betterbootloader, I'm just using it.

Before(same if you already have Klipper installed, below actions assume you have fresh skr 1.4 board)

Starting situation(fresh skr board), attach only one skr board to make it easy:

```
pi@voron01:~$ ls /dev/serial/by-id/  
usb-marlinfw.org_Marlin_USB_Device_0F00500FAF4A10485D67A9B6F50020C6-if00  
pi@voron01:~$
```

<https://github.com/Arksine/LPC17xx-DFU-Bootloader/releases>

download betterBootloader.bin this is for skr 1.3 but it still works for 1.4(read instruction below or follow ‘guide’ further below)

Pre-release

0.4.1

01aedcc

Compare

Disable DFU_BTN check

Arksine released this on Nov 12, 2019

The BTT SKR 1.3 puts the E0 enable pin on P2.12, which happens to be the “play” pin on the original smoothieboard. This release disables that check to keep stepper drivers from interfering with the boot sequence. Unlike the bootloader that ships with the SKR 1.3, this bootloader makes it possible to enter DFU mode via the application.

Note that betterBootloader.bin can be used to update the bootloader by using the sd card:

- Put betterBootloader.bin on your sd card and rename it firmware.bin
- Insert the sd card into the SKR 1.3
- Power on the SKR 1.3 (or reset if already powered on)
- Wait 10 seconds, then reset
- The new bootloader should be flashed along with Klipper. You can now flash using USB/DFU or using the sd card.

The IAP firmware used to flash the bootloader via sdcard is courtesy of @matthebaker and can be found [here](#).

The FABULOUS name “betterBootloader.bin” is courtesy of @timmit99. Please heap praise on him accordingly.

Disclaimer: This software is distributed as-is with no guarantees. While the firmware works fine in our testing, neither myself nor @matthebaker are responsible for any malfunction that may occur as a result of flashing it.

Assets 8

| | |
|----------------------|----------|
| betterBootloader.bin | 37.1 KB |
| betterBootloader.md5 | 55 Bytes |
| DFU-Bootloader.bin | 13.7 KB |
| DFU-Bootloader.elf | 307 KB |
| DFU-Bootloader.hex | 38.5 KB |
| DFU-Bootloader.map | 86.4 KB |
| Source code (zip) | |
| Source code (tar.gz) | |

Rename to firmware.bin and place it on sd card.(you can remove old FIRMWARE.CUR or copy somewhere on pc as a backup)

Reset skr board, wait 10sec and we now see

```
pi@voron01:~/klipper $ ls /dev/serial/by-id/  
ls: cannot access '/dev/serial/by-id/': No such file or directory  
pi@voron01:~/klipper $
```

Reset (might need to do 2x resets in interval of 10secs)

```
pi@voron01:~$ ls /dev/serial/by-id/  
usb-Klipper_Klipper_firmware_12345-if00
```

Let's compile Klipper

(source: <https://github.com/KevinOConnor/klipper/blob/master/docs/Installation.md>)

```
pi@voron01: ~/klipper
pi@voron01:/ $ cd ~/klipper/
pi@voron01:~/klipper $ sudo service klipper stop
pi@voron01:~/klipper $ make menuconfig
```

Make menuconfig

```
pi@voron01:~/klipper $ make menuconfig
scripts/kconfig/mconf /home/pi/klipper/src/Kconfig
```

Pick LBC1768 (if using turbo choose 120MHz, note: I have not tested turbo version)

```
pi@voron01: ~/klipper
/home/pi/klipper/.config - Klipper Firmware Configuration
Klipper Firmware Configuration
x Arrow keys navigate the menu. <Enter> selects submenus ---> (or empty x
x submenus ----). Highlighted letters are hotkeys. Pressing <Y> x
x includes, <N> excludes, <M> modularizes features. Press <Esc><Esc> to x
x exit, <?> for Help, </> for Search. Legend: [*] built-in [ ] x
x lqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqk x
x x [*] Enable extra low-level configuration options x x
x x Micro-controller Architecture (LPC176x (Smoothieboard)) --->x x
x x Processor model (lpcl768 (100 MHz)) ---> x x
x x [*] Target board uses Smoothieware bootloader x x
x x [*] Use USB for communication (instead of serial) x x
x x USB ids ---> x x
x x [ ] Specify a custom step pulse duration x x
x x () GPIO pins to set at micro-controller startup x x
x x x x x x
x mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj x
x tqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqu x
x x <Select> <Exit> <Help> x
x mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj
```

Select Exit

And type: make

```
pi@voron01:~/klipper $ make menuconfig
scripts/kconfig/mconf /home/pi/klipper/src/Kconfig

*** End of the configuration.
*** Execute 'make' to start the build or try 'make help'.

pi@voron01:~/klipper $ make
Build Kconfig config file
Creating symbolic link out/board
Compiling out/src/sched.o
Compiling out/src/command.o
Compiling out/src/basecmd.o
```

Wait until it is compiled.

```
Version: v0.8.0-779-g91979756-20200917_210241-voron01
Preprocessing out/src/generic/armcm_link.ld
Linking out/klipper.elf
Creating bin file out/klipper.bin
pi@voron01:~/klipper $
```

Now type(should be 'always the same, if not verify with `ls /dev/serial/by-id/*` command):

make flash FLASH_DEVICE=/dev/serial/by-id/usb-Klipper_Klipper_firmware_12345-if00

```
pi@voron01:~/klipper $ make flash FLASH_DEVICE=/dev/serial/by-id/usb-Klipper_Klipper_fir
mware_12345-if00
Flashing out/klipper.bin to /dev/serial/by-id/usb-Klipper_Klipper_firmware_12345-if00
Entering bootloader on /dev/serial/by-id/usb-Klipper_Klipper_firmware_12345-if00
Device reconnect on /sys/devices/platform/scb/fd500000.pcie/pci0000:00/0000:00:00.0/0000
:01:00.0/usb1/1-1/1-1.3/1-1.3:1.0
sudo dfu-util -p 1-1.3 -D out/klipper.bin

dfu-util 0.9

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This program is Free Software and has ABSOLUTELY NO WARRANTY
Please report bugs to http://sourceforge.net/p/dfu-util/tickets/

dfu-util: Invalid DFU suffix signature
dfu-util: A valid DFU suffix will be required in a future dfu-util release!!!
Opening DFU capable USB device...
ID 1d50:6015
Run-time device DFU version 0101
Claiming USB DFU Interface...
Setting Alternate Setting #0 ...
Determining device status: state = dfuIDLE, status = 0
dfuIDLE, continuing
DFU mode device DFU version 0101
Device returned transfer size 512
Copying data from PC to DFU device
Download [=====] 100% 20512 bytes
Download done.
state(8) = dfuMANIFEST-WAIT-RESET, status(0) = No error condition is present
Done!
pi@voron01:~/klipper $ ls /dev/serial/by-id/
usb-Klipper_lpc1768_04C0FF0E02094AAF459A5E5DC32000F5-if00
pi@voron01:~/klipper $
```

Take a note of that new ID for your MCU config in printer.cfg