

voron 2.4 - 350 - Siboor Kit

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Der Aufbau

orangePi

Update auf Kernel 5.x

Für die Nutzung mit canbus musste der orangePi von seinem Auslieferung OS mit 4.9er Kernel auf 5.16 upgedated werden.

Firmware Datei:

https://drive.google.com/drive/folders/1JxFueRhtbZx-joOI689f_3X_PxoVJvA

Upgrade Hoot:

<https://github.com/Lzhikai/siboor-voron/tree/main/accessories/flashing%20OrangePi3%20LTS>

User klipper - sudo ohne Password

/etc/sudoers.d/010-klipper-nopasswd

```
klipper ALL=(ALL) NOPASSWD: ALL
```

Externe USB Disk

Vorbereiten der USB Disk - ähnlich wie hier beschrieben

<https://www.tecmint.com/fdisk-commands-to-manage-linux-disk-partitions/>

Mountpoint anlegen:

```
sudo mkdir /mnt/usb500
```

UUID bestimmen:

```
lsblk /dev/sda1 -o 'UUID'
```

Mount konfigurieren, um die SSD beim Reboot automatisch zu mounten

/etc/fstab

```
# <file system> <mount point> <type> <options> <dump> <pass>
tmpfs /tmp tmpfs defaults,nosuid 0 0
UUID=<emmc> / ext4 defaults,noatime,commit=600,errors=remount-ro,x-gvfs-hide 0 1
UUID=<ext usb> /media/usb500 ext4 defaults 0 0
```

Mit "mount -a" einmalig verbinden

```
klipper@voron:~ $ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            923M    0  923M   0% /dev
tmpfs           199M  880K  198M   1% /run
/dev/mmcblk2p1  7,0G  4,9G  1,8G  74% /
tmpfs           993M    0  993M   0% /dev/shm
tmpfs           5,0M  4,0K  5,0M   1% /run/lock
tmpfs           993M  4,0K  993M   1% /tmp
/dev/zram1       49M   29M   17M  65% /var/log
tmpfs           199M    0  199M   0% /run/user/1000
/dev/sda1       469G   73M  445G   1% /media/usb500
klipper@voron:~ $
```

Der orangepi hatte immer Temperaturen über 75C - das finde ich inakzeptabel.

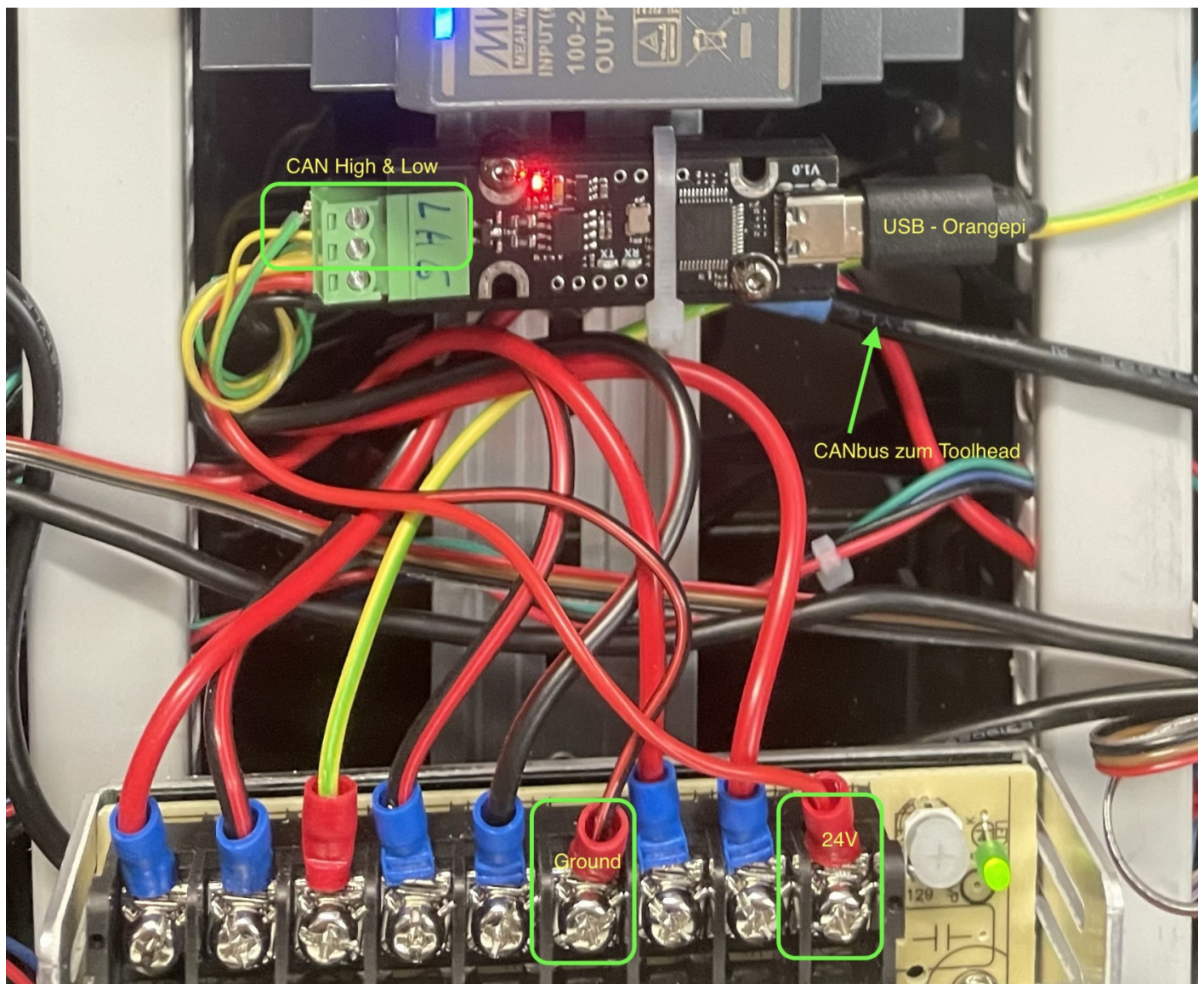
CANbus

uups, da hab ich mir was angetan. So einfach Plug'n Play wie ich mir das dachte war/ist es nicht. Es fängt schon bei meinem Know How darüber an. Nämlich, keines vorhanden :-)

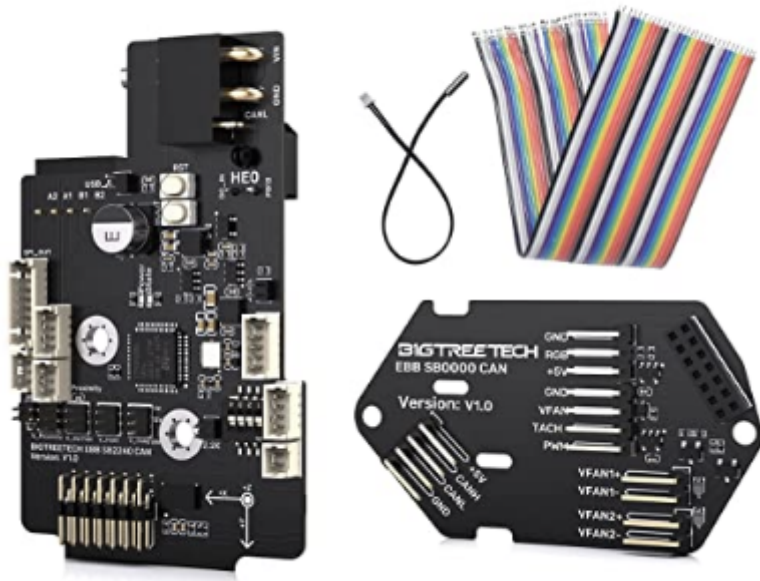
Aber nach all dem Leid läuft es nun sauber :-)

Hardware:

FYSETC UCAN usb2can Adapter

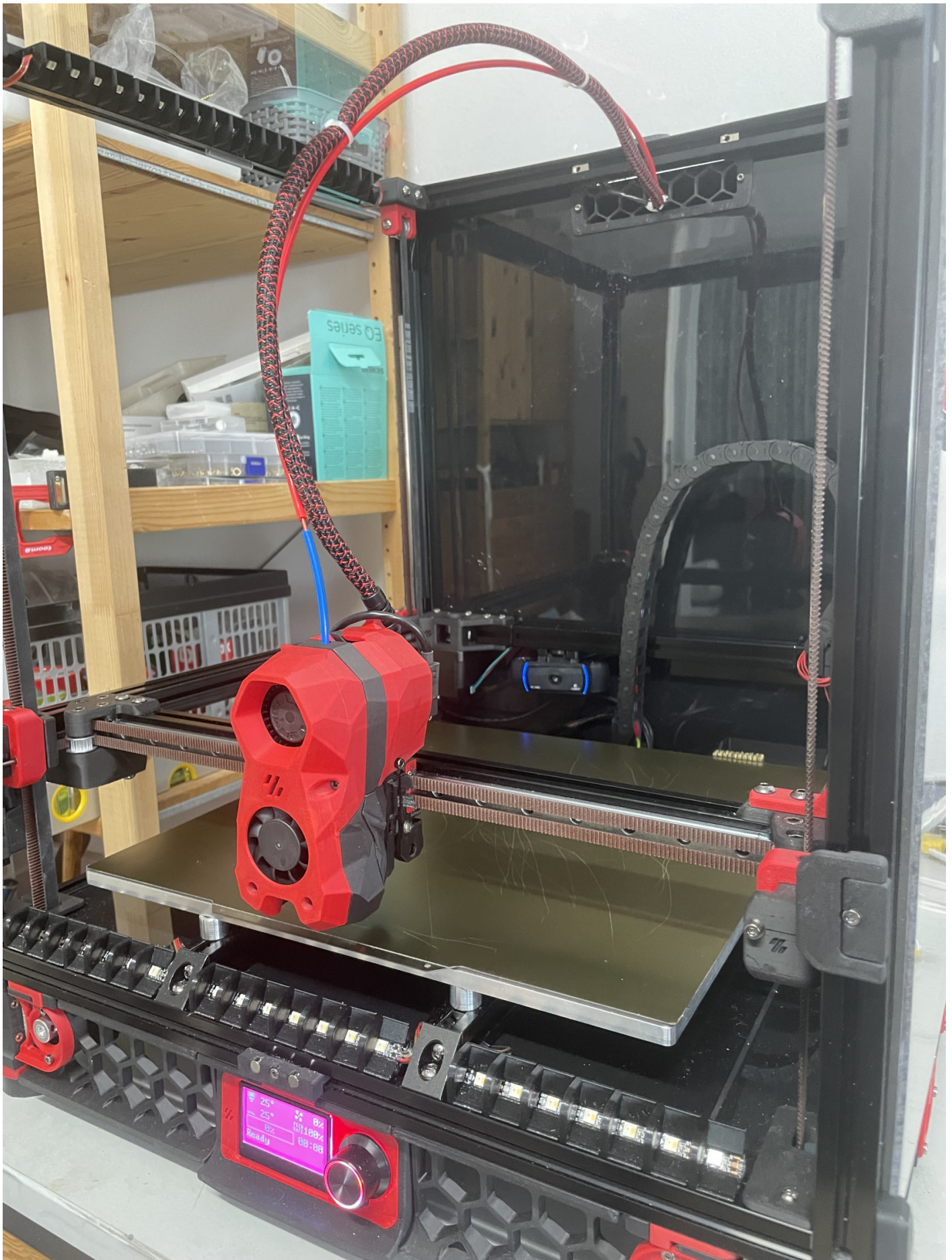


BIGTREETECH EBB SB2240 CAN

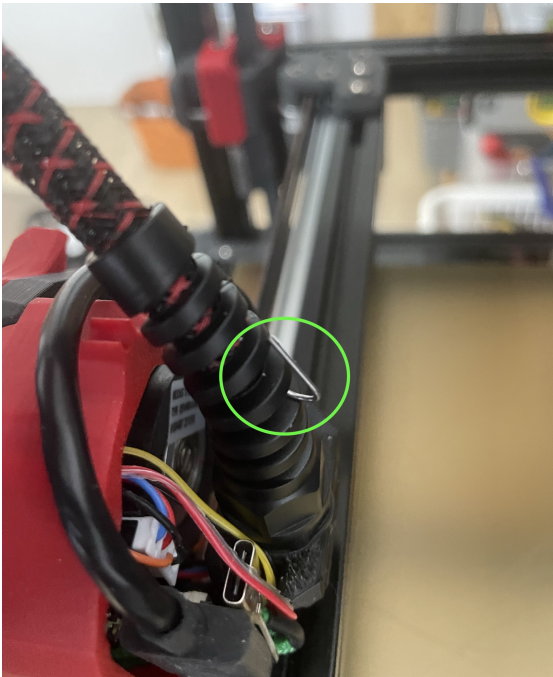


Verkabelung

- Verbindung des usb2can via usb
- Das CANbus Kabel mit einem 0.8mm Federstahldraht unterstützt
- PG7 Kabelverschraubung an der Kabelführung
- [CW2-Unmbilical-PG7-bttsb2209-and-2240.st](http://www.bigtreetech.com/CW2-Unmbilical-PG7-bttsb2209-and-2240.st) Kabelhalter
- 6mm selbstschließender Kabelschlauch in Schwarz Rotem Gewebe



Den Stahldraht habe ich mit einer gebogenen Öse im PG7 verankert. Oben an der Abluft ein kleines Loch gebohrt und durchgesteckt. Da kann sich der Draht jetzt bewegen ohne Spannung auf das



h etwas kürzen.



Ich habe das CANbus Kabel zuerst mit der "CW2 Cable Bridge" aus dem Bigtreetech Github geführt. Das bringt allerdings Unruhe in die Steckverbundung und ich hatte immer wieder EBB Can Errors und Verbindungsabbrüche. Mit dieser Lösung nun keine Fehler mehr.

printer.cfg

```
# This file contains common pin mappings for the BIGTREETECH EBBCan
```



```
# Canbus board. To use this config, the firmware should be compiled for the
# STM32G0B1 with "8 MHz crystal" and "USB (on PA11/PA12)" or "CAN bus (on PB0/PB1)".
# The "EBB Can" micro-controller will be used to control the components on the nozzle.
```

```
# See docs/Config_Reference.md for a description of parameters.
```

```
[mcu EBBCan]
```

```
#serial: /dev/serial/by-id/usb-Klipper_Klipper_firmware_12345-if00
```

```
#canbus_uuid: 0e0d81e4210c
```

```
canbus_uuid=15197 ab9
```

```
[temperature_sensor EBB_NTC]
```

```
sensor_type: Generic 3950
```

```
sensor_pin: EBBCan: PA2
```

```
[adxl345]
```

```
cs_pin: EBBCan: PB12
```

```
spi_software_sclk_pin: EBBCan: PB10
```

```
spi_software_mosi_pin: EBBCan: PB11
```

```
spi_software_miso_pin: EBBCan: PB2
```

```
axes_map: z,-y,x
```

```
[resonance_tester]
```

```
probe_points: 170, 175, 20
```

```
accel_chip: adxl345
```

```
[input_shaper]
```

```
shaper_freq_x: 52.4
```

```
shaper_type_x: mzv
```

```
shaper_freq_y: 37.4
```

```
shaper_type_y: mzv
```

```
[printer]
```

```
max_accel: 2800
```

```
[extruder]
```

```
step_pin: EBBCan: PD0
```

```
dir_pin: EBBCan: PD1
```

```
enable_pin: !EBBCan: PD2
```

```
gear_ratio: 50:10
```

microsteps: 16
rotation_distance: 22.386
full_steps_per_rotation: 200
nozzle_diameter: 0.400
filament_diameter: 1.750
heater_pin: EBBCan:PB13
sensor_type: ATC Semitec 104GT-2
sensor_pin: EBBCan: PA3
min_temp: -100
max_temp: 270
max_extrude_only_distance: 120
pressure_advance: 0.045

[tmc2240 extruder]

cs_pin: EBBCan: PA15
spi_software_sclk_pin: EBBCan: PB10
spi_software_mosi_pin: EBBCan: PB11
spi_software_miso_pin: EBBCan: PB2
driver_TPFD: 0
run_current: 0.550
stealthchop_threshold: 0

webcam mit mjpg-streamer

Hardware

Vbestlife 12 MP USB-Kameramodul, 4K HD 123 Grad Ansichten IMX258 (1/3,06 Zoll)

https://www.amazon.de/dp/B0BDLSZ2N2?psc=1&ref=ppx_yo2ov_dt_b_product_details

deb packages

sudo apt install v4l-conf v4l-utils

mjpg streamer:

<https://github.com/john-clark/mjpg-streamer-setup>

start.sh

```
#!/bin/sh
export LD_LIBRARY_PATH="$(pwd)"
./mjpg_streamer -i "input_uvc.so -n -f 30 -r 1280x720 -d /dev/video1" -o "output_http.so" &
```

```
### check the service configuration
klipper@voron:~/mjpg-streamer <master*>$ sudo vi /etc/systemd/system/webcamd.service
[Unit]
Description=Starts mjpg-streamer on startup
After=network.target

[Install]
WantedBy=multi-user.target

[Service]
Type=forking
User=klipper
```

```
WorkingDirectory=/home/klipper/mjpg-streamer
StandardOutput=append:/var/log/webcamd.log
StandardError=append:/var/log/webcamd.log
ExecStart=/home/klipper/mjpg-streamer/start.sh
Restart=always
```

Reload the service configuration

```
klipper@voron:~/mjpg-streamer <master*>$ sudo systemctl daemon-reload
```

enable autostart

```
klipper@voron:~/mjpg-streamer <master*>$ sudo systemctl enable webcamd.service
```

restart or start the service

```
klipper@voron:~/mjpg-streamer <master*>$ sudo systemctl restart webcamd.service
```

check the state and feel happy

```
klipper@voron:~/mjpg-streamer <master*>$ sudo systemctl status webcamd.service
```

● webcamd.service - Starts mjpg-streamer on startup

Loaded: loaded (/etc/systemd/system/webcamd.service; disabled; vendor preset: enabled)

Active: active (running) since Wed 2023-05-10 14:17:15 CEST; 7s ago

Process: 15063 ExecStart=/home/klipper/mjpg-streamer/start.sh (code=exited, status=0/SUCCESS)

Main PID: 15065 (mjpg_streamer)

Tasks: 3 (limit: 2212)

Memory: 916.0K

CPU: 77ms

CGroup: /system.slice/webcamd.service

└─15065 ./mjpg_streamer -i input_uvc.so -n -f 30 -r 1280x720 -d /dev/video1 -o output_http.so

Mai 10 14:17:15 voron mjpg_streamer[15065]: MJPG-streamer [15065]: Frames Per Second.: 30

Mai 10 14:17:15 voron mjpg_streamer[15065]: MJPG-streamer [15065]: Format.....: JPEG

Mai 10 14:17:15 voron mjpg_streamer[15065]: MJPG-streamer [15065]: TV-Norm.....: DEFAULT

Mai 10 14:17:15 voron mjpg_streamer[15065]: MJPG-streamer [15065]: www-folder-path.....: disabled

Mai 10 14:17:15 voron mjpg_streamer[15065]: MJPG-streamer [15065]: HTTP TCP port.....: 8080

Mai 10 14:17:15 voron mjpg_streamer[15065]: MJPG-streamer [15065]: HTTP Listen Address..: (null)

Mai 10 14:17:15 voron mjpg_streamer[15065]: MJPG-streamer [15065]: username:password....: disabled

Mai 10 14:17:15 voron mjpg_streamer[15065]: MJPG-streamer [15065]: commands.....: enabled

Mai 10 14:17:15 voron mjpg_streamer[15065]: MJPG-streamer [15065]: starting input plugin input_uvc.so

Mai 10 14:17:15 voron mjpg_streamer[15065]: MJPG-streamer [15065]: starting output plugin: output_http.so
(ID: 00)

FYSETC Spyder 2.3

<https://3dwork.io/en/complete-guide-fysetc-spider/>

2 Kameras mit crowsnest

Die Konfiguration ist deutlich einfacher als mit dem mjpg-streamer

Installation: <https://crowsnest.mainsail.xyz/>

Meine Kameras:

1) Logitech C920 an der Gantry

2) Das AngryCam Mod <https://mods.vorondesign.com/detail/RYPQW53mtem8Nj1JKqiSQ>

```
[crowsnest]
log_path: /home/klipper/printer_data/logs/crowsnest.log
log_level: verbose          # Valid Options are quiet/verbose/debug
delete_log: false          # Deletes log on every restart, if set to true
no_proxy: false

[cam 1]
mode: mjpg                  # mjpg/rtsp
port: 8080                  # Port
device: /dev/v4l/by-id/usb-046d_HD_Pro_Webcam_C920_95163CEF-video-index0
resolution: 1280x720 [1]    # 1920x1080 # widthxheight format
max_fps: 15                 # If Hardware Supports this it will be forced, otherwise ignored/coerced.
v4l2ctl: focus_automatic_continuous=0,focus_absolute=30 # disable Autofocus

[cam 2]
mode: mjpg                  # mjpg/rtsp
port: 8081                  # Port
device: /dev/v4l/by-id/usb-BC-FAY-220507_Depstech_webcam_MIC_01.00.00-video-index0
resolution: 1280x720        # widthxheight format
max_fps: 15                 # If Hardware Supports this it will be forced, otherwise ignored/coerced.
```

Infos zu manuellen Kamera Settings über den v4lctl:

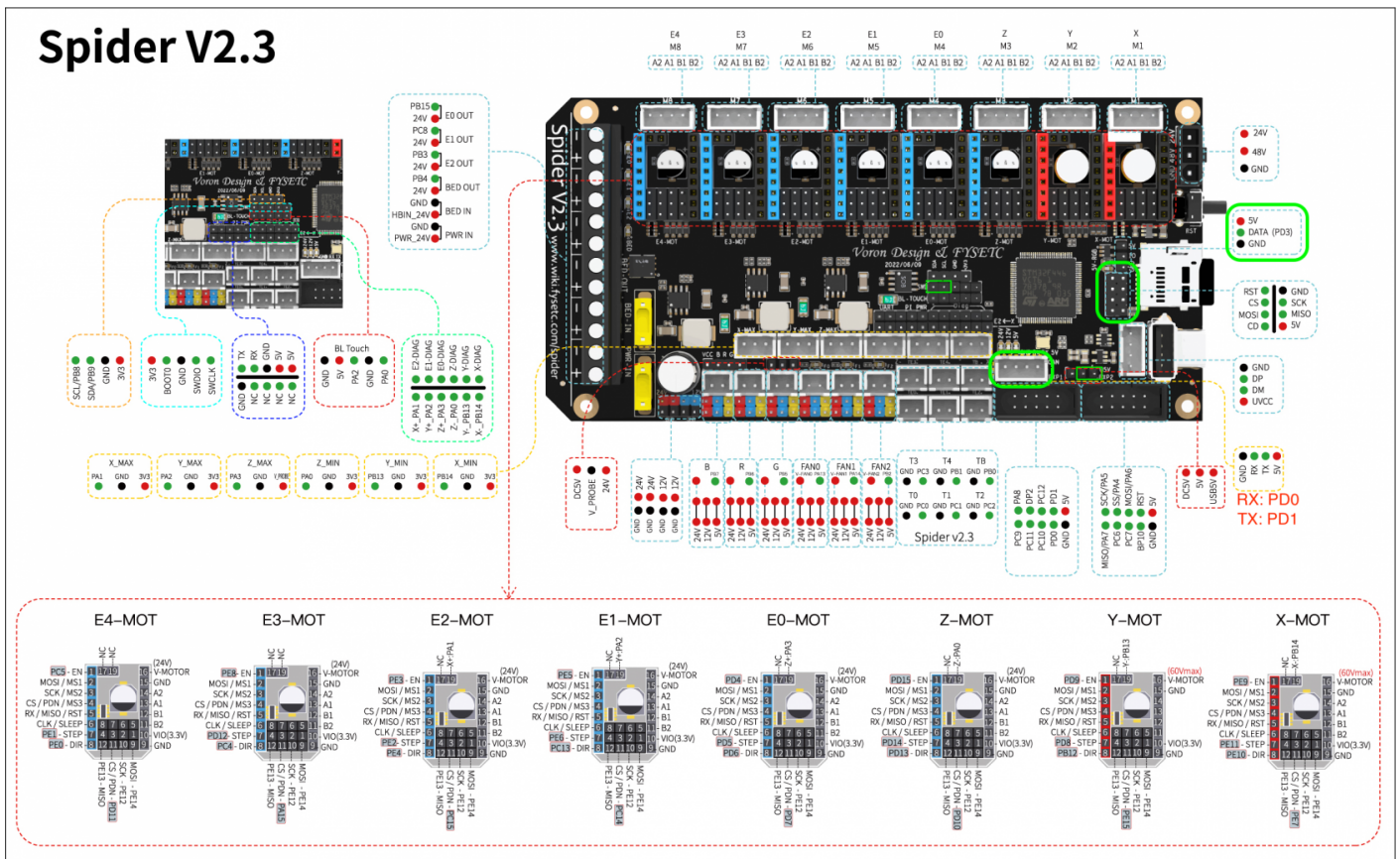
<https://www.kurokesu.com/main/2016/01/16/manual-usb-camera-settings-in-linux/>

Neopixel LED Stripes

Neopixel LEDs sind LED Streifen, die 3polig angeschlossen werden. 5V, Ground und Data.

Über die Datenleitung wird jede einzelne LED in Farbe und Helligkeit gesteuert.

Das Fysetc Spider 2.3 bietet einen RGB Port an. PD3

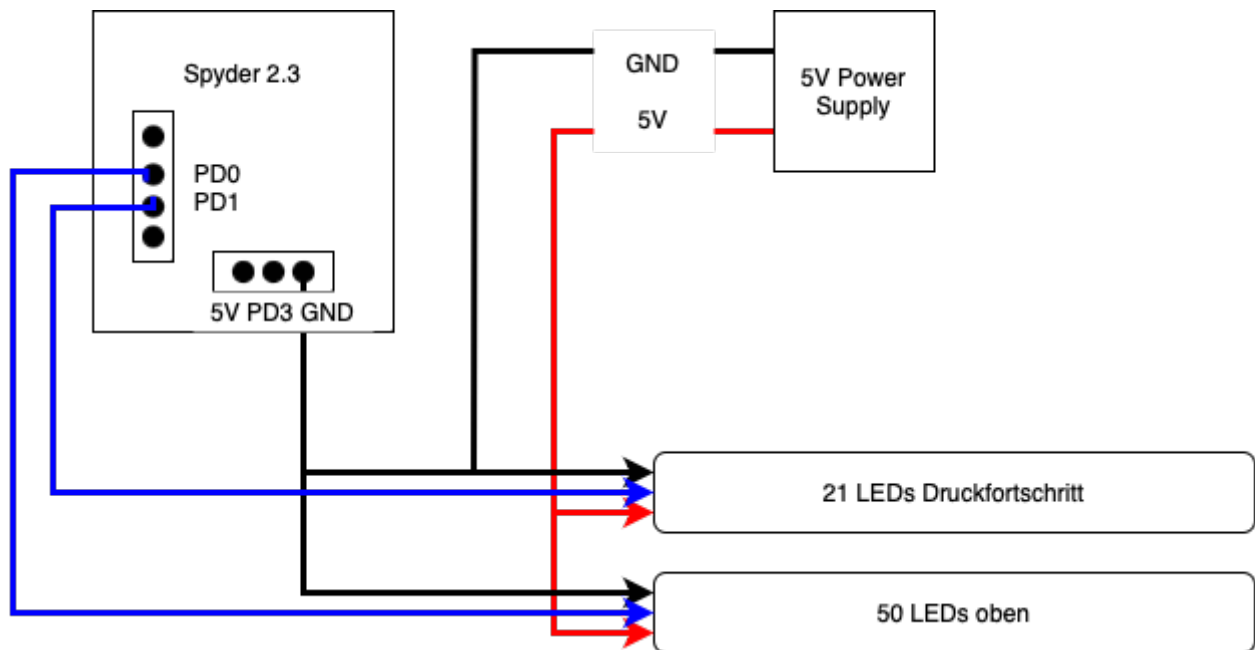


Ich muss mir irgendwie den PD3 zerstört haben. Im siboor Discord haben wir dann 2 weitere digitale Ausgänge gefunden, die für RGB Ansteuerung herangenommen werden können.

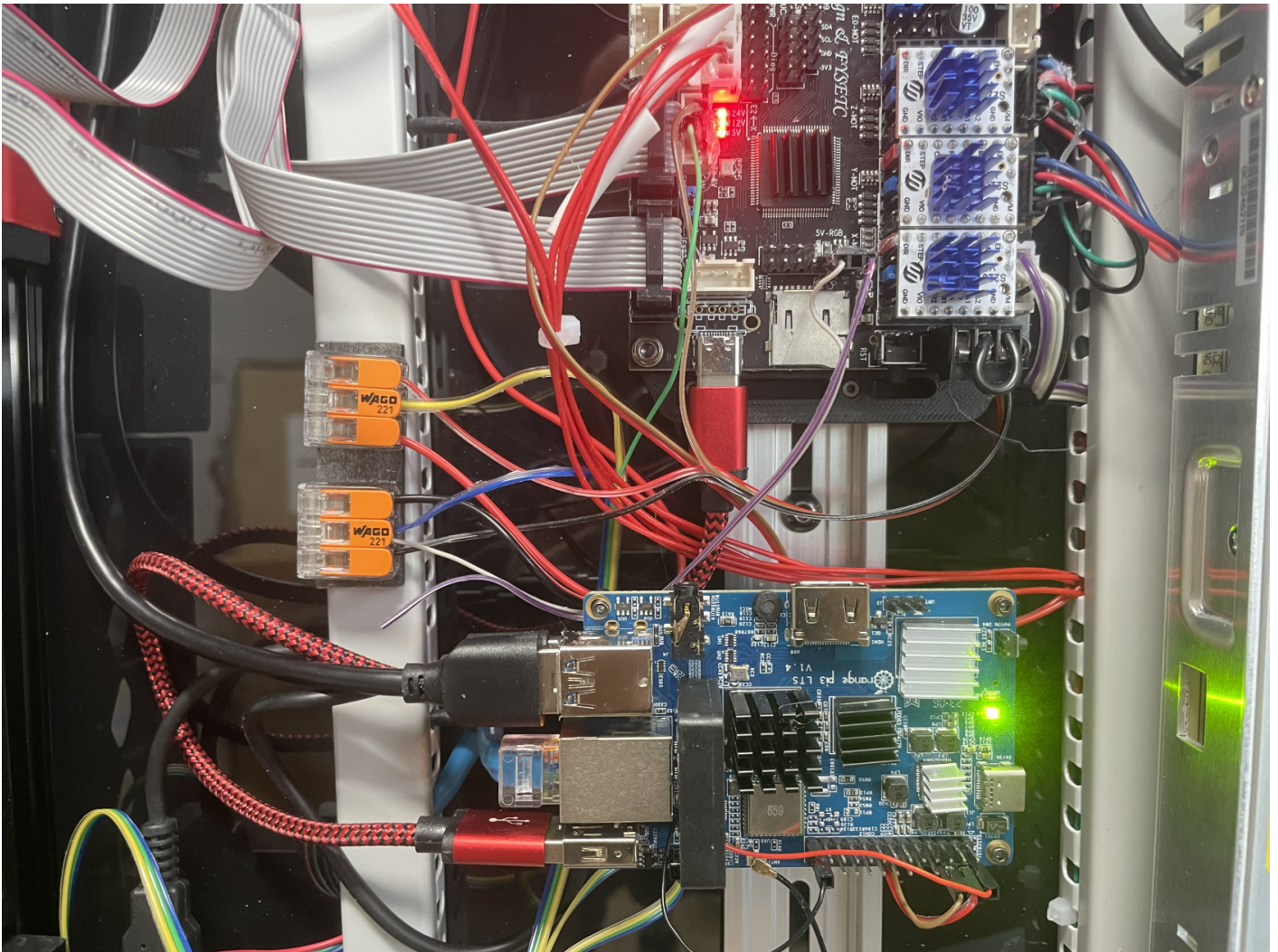
Der RX (PD0) und der TX (PD1) Port vom CANbus Anschluss.

Der interne 5V Anschluss reicht nicht für 50 LEDs aus. Darum habe ich ein zusätzliches 5V Netzteil eingebaut.

Bei der Verwendung eines externen Netzteils muss unbedingt GND gleichgeschaltet werden.



Verdrahtung



5V Netzteil



neopixel.cfg

```
[neopixel chamber_leds]
pin: PD0
chain_count: 50
color_order: GRBW
initial_RED: 0.2
initial_GREEN: 0.2
initial_BLUE: 0.2
initial_WHITE: 0.2
```

```
[neopixel progress_leds]
pin: PD1
chain_count: 21
color_order: GRBW
initial_RED: 0.2
initial_GREEN: 0.2
initial_BLUE: 0.2
initial_WHITE: 0.2
```

LED Effects

Für die Ansteuerung der LEDs nutze ich die LED Effects von Julian Schill

https://github.com/julianschill/klipper-led_effect

Damit werden sowohl die Neopixels im Stealthburner und dann meine chambers_leds und die progress_leds gesteuert.

```
#####
# LED Effects Animations #
#####

#####
## logo effects ##
#####

[led_effect sb_logo_busy]
autostart:      false
frame_rate:     24
leds:
  neopixel:sb_leds (1)
```

layers:

breathing 3 1 top (1,0,0)

[led_effect sb_logo_cleaning]

autostart: false

frame_rate: 24

leds:

neopixel:sb_leds (1)

layers:

breathing 3 1 top (0.0, 0.02, 0.5)

[led_effect sb_logo_calibrating_z]

autostart: false

frame_rate: 24

leds:

neopixel:sb_leds (1)

layers:

breathing 3 1 top (0.0, 0.0, 0.35)

[led_effect sb_logo_heating]

leds:

neopixel:sb_leds (1)

autostart: false

frame_rate: 24

layers:

breathing 3 1 top (1, 0.18, 0)

[led_effect sb_logo_cooling]

leds:

neopixel:sb_leds (1)

autostart: false

frame_rate: 24

layers:

breathing 3 1 top (0, 0, 1)

[led_effect sb_logo_homing]

autostart: false

frame_rate: 24

leds:

neopixel:sb_leds (1)

layers:

breathing 3 1 top (0.0, 0.6, 0.2)

[led_effect sb_logo_leveling]

autostart: false

frame_rate: 24

leds:

neopixel:sb_leds (1)

layers:

breathing 3 1 top (0.5, 0.1, 0.4)

[led_effect sb_logo_meshing]

autostart: false

frame_rate: 24

leds:

neopixel:sb_leds (1)

layers:

breathing 3 1 top (0.2, 1.0, 0.0)

[led_effect sb_logo_printing]

autostart: false

frame_rate: 24

leds:

neopixel:sb_leds (1)

layers:

gradient 0.3 1 add (0.3, 0.0, 0.0),(0.3, 0.3, 0.0),(0.3, 0.1, 0.0)

[led_effect sb_logo_standby]

autostart: false

frame_rate: 24

leds:

neopixel:sb_leds (1)

layers:

breathing 3 1 top (0.01, 0.01, 0.01)

[led_effect sb_logo_part_ready]

autostart: false

frame_rate: 24

leds:

neopixel:sb_leds (1)

layers:

breathing 3 1 top (0.0, 1.0, 0.0)

```
#####  
## nozzle effects ##  
#####
```

```
[led_effect sb_nozzle_heating]  
autostart:      false  
frame_rate:     24  
leds:  
    neopixel:sb_leds (2,3)  
layers:  
    breathing 3 1 top (1.0, 0.18, 0.0, 0.0)
```

```
[led_effect sb_nozzle_cooling]  
autostart:      false  
frame_rate:     24  
leds:  
    neopixel:sb_leds (2,3)  
layers:  
    breathing 3 1 top (0.0, 0.0, 1.0, 0.1)
```

```
[led_effect sb_nozzle_standby]  
autostart:      false  
frame_rate:     24  
leds:  
    neopixel:sb_leds (2,3)  
layers:  
    breathing 3 1 top (0.6, 0.0, 0.0, 0.0)
```

```
[led_effect sb_nozzle_part_ready]  
autostart:      false  
frame_rate:     24  
leds:  
    neopixel:sb_leds (2,3)  
layers:  
    breathing 3 1 top (0.6, 1.0, 0.0, 0.1)
```

```
#####  
## all led effects ##  
#####
```

```
[led_effect sb_critical_error]
```

```
leds:
```

```
    neopixel:sb_leds
```

```
    neopixel:chamber_leds
```

```
layers:
```

```
    strobe      1 1.5  add    (1.0, 1.0, 1.0)
```

```
    breathing   2 0    difference (0.95, 0.0, 0.0)
```

```
    static      1 0    top     (1.0, 0.0, 0.0)
```

```
autostart:                false
```

```
frame_rate:                24
```

```
run_on_error:              true
```

```
[led_effect rainbow]
```

```
leds:
```

```
    neopixel:sb_leds
```

```
    neopixel:chamber_leds
```

```
autostart:                false
```

```
frame_rate:                24
```

```
layers:
```

```
    gradient 1 1 top (1,0,0,0),(0,1,0,0),(0,0,1,0)
```

```
#####
```

```
# LED Effects Statics #
```

```
#####
```

```
[led_effect set_nozzle_leds]
```

```
leds:
```

```
    neopixel:sb_leds (2,3)
```

```
    #neopixel:caselight
```

```
autostart:                false
```

```
frame_rate:                24
```

```
layers:
```

```
    static      0 0    top     (0.0, 0.0, 0.0, 1.0)
```

```
[led_effect set_logo_leds]
```

```
leds:
```

```
    neopixel:sb_leds (1)
```

```
autostart:                false
```

```
frame_rate:                24
```

```
layers:
```

```
static      0 0 top    (1.0, 1.0, 1.0)
```

```
[led_effect set_chamber_white]
```

```
leds:
```

```
    neopixel:chamber_leds
```

```
autostart:      false
```

```
frame_rate:     24
```

```
layers:
```

```
    static      0 0 top    (0.0, 0.0, 0.0, 1.0)
```

```
[led_effect set_chamber_white_left]
```

```
leds:
```

```
    neopixel:chamber_leds (1-20)
```

```
autostart:      false
```

```
frame_rate:     24
```

```
layers:
```

```
    static      0 0 top    (0.0, 0.0, 0.0, 1.0)
```

```
[led_effect set_chamber_white_right]
```

```
leds:
```

```
    neopixel:chamber_leds (31-50)
```

```
autostart:      false
```

```
frame_rate:     24
```

```
layers:
```

```
    static      0 0 top    (0.0, 0.0, 0.0, 1.0)
```

```
[led_effect set_chamber_white_front]
```

```
leds:
```

```
    neopixel:chamber_leds (21-30)
```

```
autostart:      false
```

```
frame_rate:     24
```

```
layers:
```

```
    static      0 0 top    (0.0, 0.0, 0.0, 1.0)
```

```
[led_effect set_progress]
```

```
leds:
```

```
    neopixel:progress_leds
```

```
autostart:      false
```

```
frame_rate:     24
```

layers:

```
progress -1 0 add      ( 0, 0, 1),( 0, 0.1, 0.6)
```

```
static    0 0 top      ( 0, 0, 0.1)
```

#####

The Macros

#####

[gcode_macro set_progress]

gcode:

```
SET_LED_EFFECT EFFECT=set_progress REPLACE=1
```

[gcode_macro stop_chamber_effects]

gcode:

```
STOP_LED_EFFECTS LEDS="neopixel:chamber_leds"
```

[gcode_macro set_chamber_white]

gcode:

```
STOP_CHAMBER_EFFECTS
```

```
SET_LED_EFFECT EFFECT=set_chamber_white REPLACE=1
```

[gcode_macro set_chamber_white_left]

gcode:

```
STOP_CHAMBER_EFFECTS
```

```
SET_LED_EFFECT EFFECT=set_chamber_white_left REPLACE=1
```

[gcode_macro set_chamber_white_right]

gcode:

```
STOP_CHAMBER_EFFECTS
```

```
SET_LED_EFFECT EFFECT=set_chamber_white_right REPLACE=1
```

[gcode_macro set_chamber_white_front]

gcode:

```
STOP_CHAMBER_EFFECTS
```

```
SET_LED_EFFECT EFFECT=set_chamber_white_front REPLACE=1
```

[gcode_macro set_logo_leds_off]

gcode:

```
SET_LED_EFFECT EFFECT=set_logo_leds STOP=1
```

[gcode_macro set_logo_leds_on]

gcode:

SET_LED_EFFECT EFFECT=set_logo_leds

[gcode_macro set_nozzle_leds_on]

gcode:

SET_LED_EFFECT EFFECT=set_nozzle_leds

[gcode_macro set_nozzle_leds_off]

gcode:

SET_LED_EFFECT EFFECT=set_nozzle_leds STOP=1

[gcode_macro status_off]

gcode:

STOP_LED_EFFECTS

SET_CHAMBER_WHITE_FRONT

[gcode_macro status_ready]

gcode:

STOP_LED_EFFECTS

SET_LED_EFFECT EFFECT=rainbow

SET_CHAMBER_WHITE_FRONT

[gcode_macro status_part_ready]

gcode:

STOP_LED_EFFECTS

SET_LED_EFFECT EFFECT=sb_nozzle_part_ready

SET_LED_EFFECT EFFECT=sb_logo_part_ready

SET_CHAMBER_WHITE_FRONT

[gcode_macro status_busy]

gcode:

STOP_LED_EFFECTS

SET_LED_EFFECT EFFECT=sb_logo_busy

SET_CHAMBER_WHITE_FRONT

set_nozzle_leds_on

[gcode_macro status_heating]

gcode:

STOP_LED_EFFECTS

SET_LED_EFFECT EFFECT=sb_logo_heating

SET_LED_EFFECT EFFECT=sb_nozzle_heating

SET_CHAMBER_WHITE_FRONT

[gcode_macro status_cooling]

gcode:

```
STOP_LED_EFFECTS
SET_LED_EFFECT EFFECT=sb_logo_cooling
SET_LED_EFFECT EFFECT=sb_nozzle_cooling
SET_CHAMBER_WHITE_FRONT
```

[gcode_macro status_leveling]

gcode:

```
STOP_LED_EFFECTS
SET_LED_EFFECT EFFECT=sb_logo_leveling
SET_CHAMBER_WHITE_FRONT
set_nozzle_leds_on
```

[gcode_macro status_homing]

gcode:

```
STOP_LED_EFFECTS
SET_LED_EFFECT EFFECT=sb_logo_homing
SET_CHAMBER_WHITE_FRONT
set_nozzle_leds_on
```

[gcode_macro status_cleaning]

gcode:

```
STOP_LED_EFFECTS
SET_LED_EFFECT EFFECT=sb_logo_cleaning
SET_CHAMBER_WHITE_FRONT
set_nozzle_leds_on
```

[gcode_macro status_meshing]

gcode:

```
STOP_LED_EFFECTS
SET_LED_EFFECT EFFECT=sb_logo_meshing
SET_CHAMBER_WHITE_FRONT
set_nozzle_leds_on
```

[gcode_macro status_calibrating_z]

gcode:

```
STOP_LED_EFFECTS
```

```
SET_LED_EFFECT EFFECT=sb_logo_calibrating_z
```

```
SET_CHAMBER_WHITE
```

```
set_nozzle_leds_on
```

```
[gcode_macro status_printing]
```

```
gcode:
```

```
STOP_LED_EFFECTS
```

```
SET_CHAMBER_WHITE
```

```
SET_LED_EFFECT EFFECT=sb_logo_printing
```

```
set_nozzle_leds_on
```

```
set_progress
```