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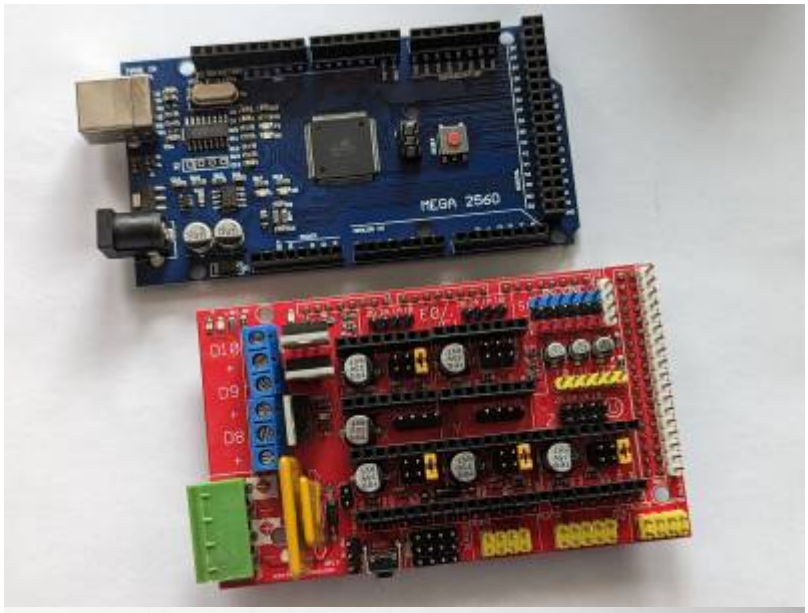
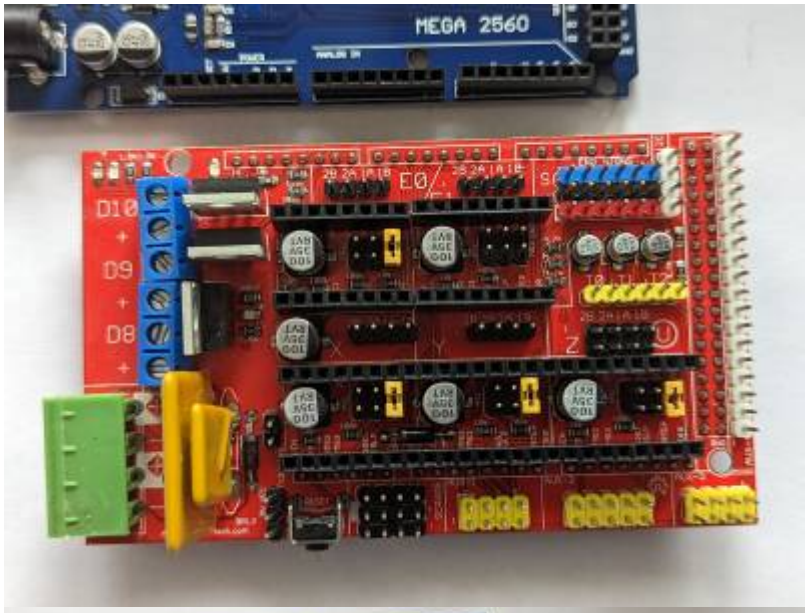
Boards

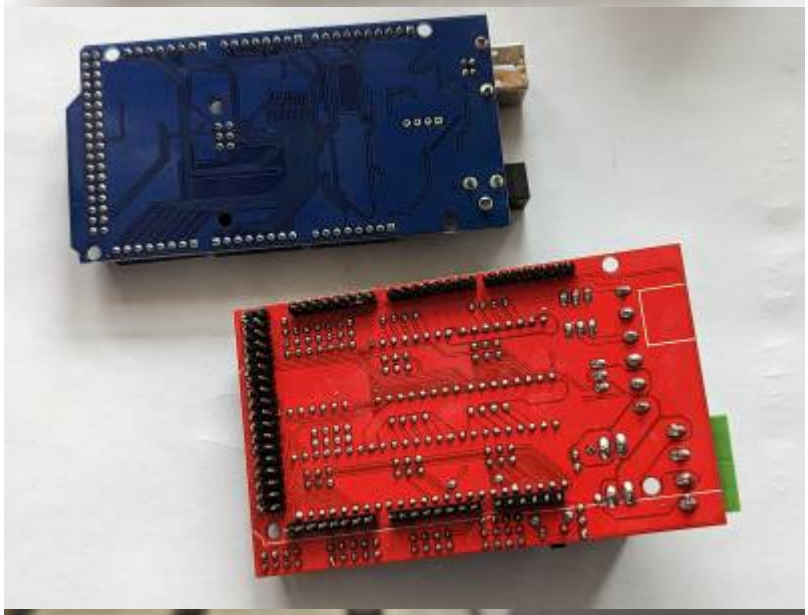
- MKS Gen L:
- Creality 1.1.3
- Creality 1.1.4
- Creality 4.2.2
- Creality 4.2.7
- Bigtreetech SKR E3 1.4 Turbo

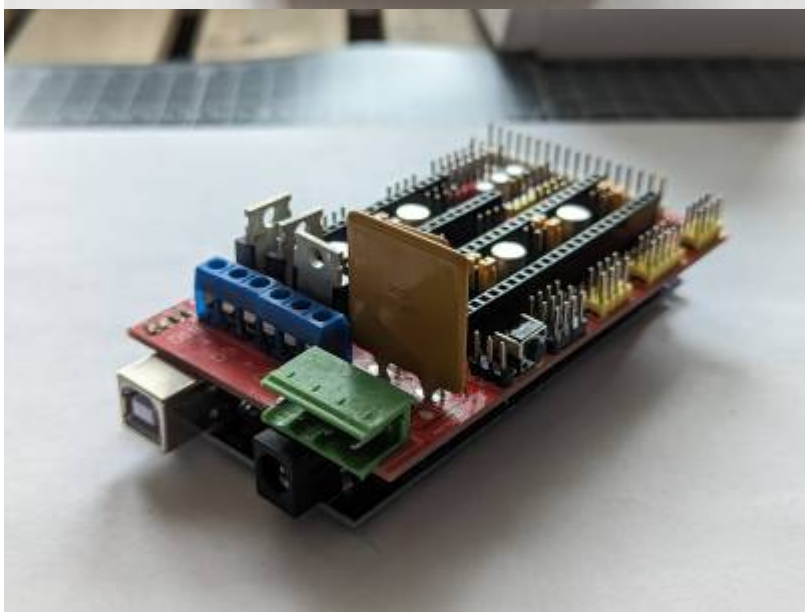
RAMPS 1.4

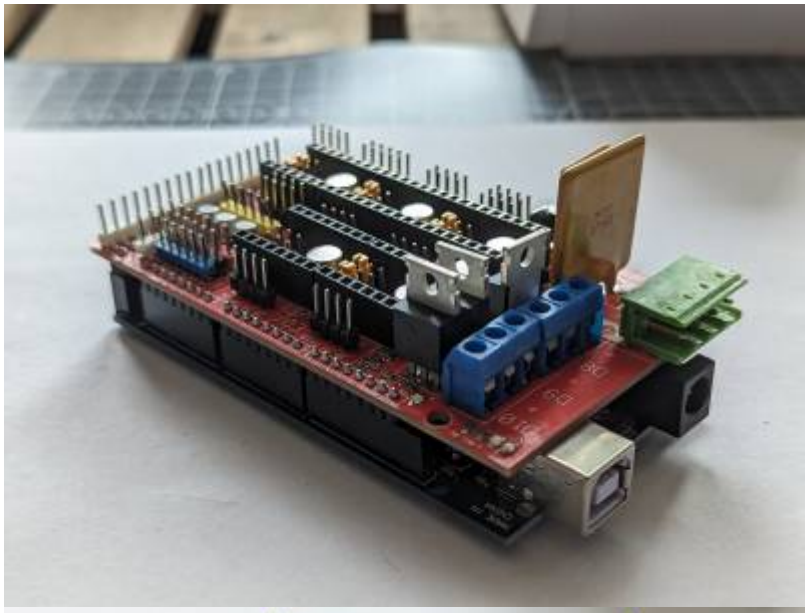
- https://3dprint.wiki/reprap/electronics/ramps
- https://www.geeetech.com/wiki/index.php/Ramps1.4
- https://www.youtube.com/watch?v=pWdm_KwDvd4
- https://de.aliexpress.com/item/1005002011277357.html

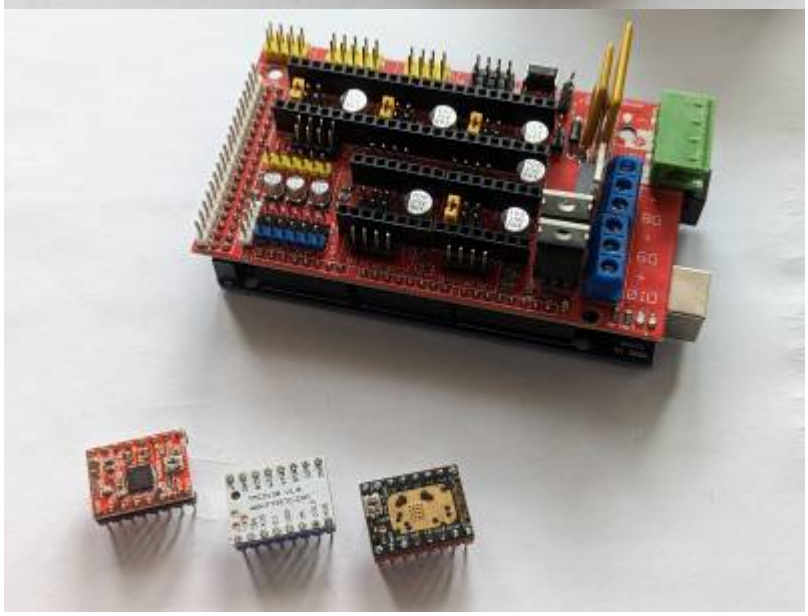



MEGA 2560
D10
D9
D8





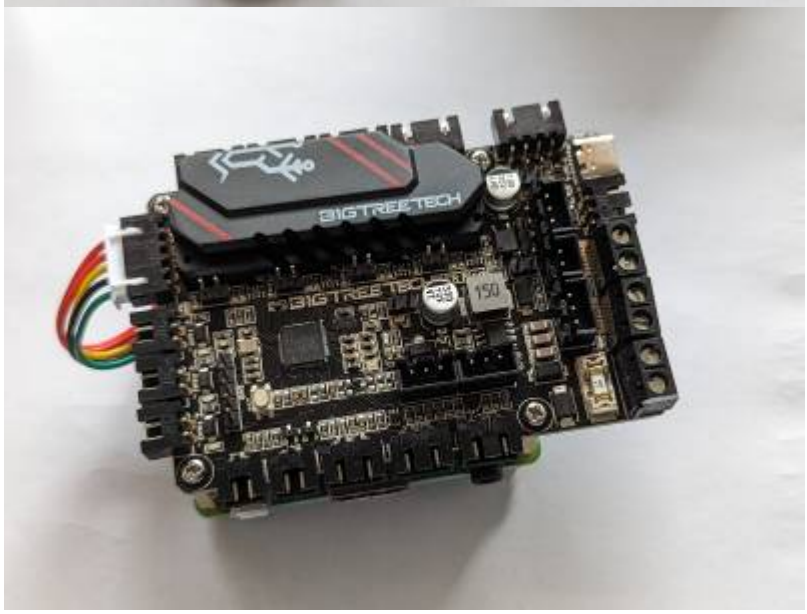


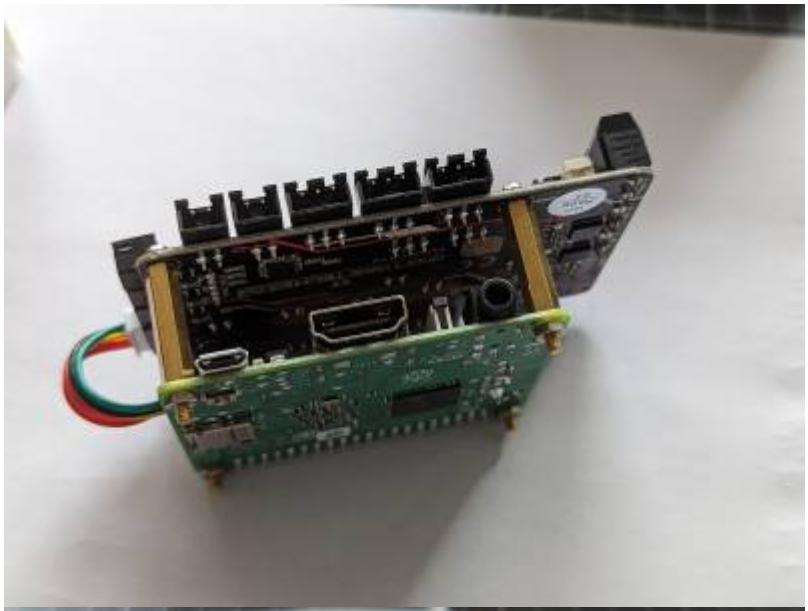


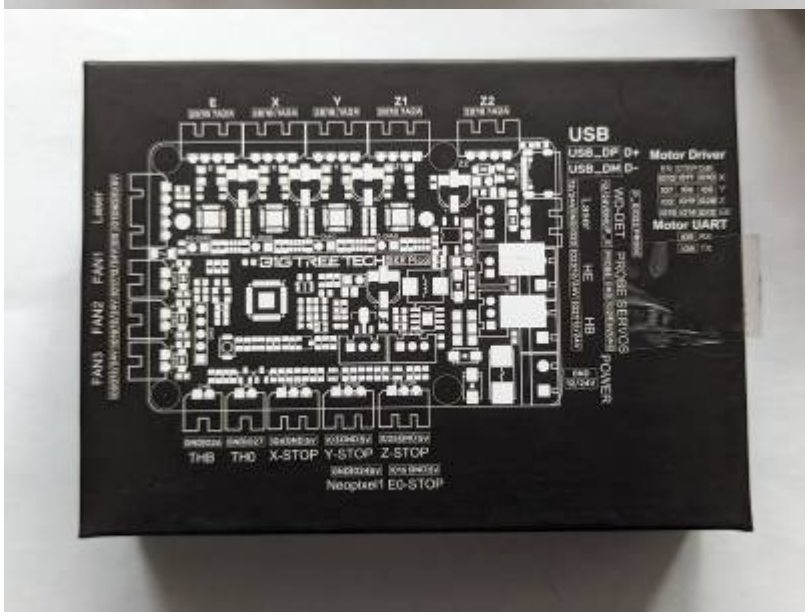
Bigtreetech SKR Pico

- Das Board hat einen RPi Pico Core mit TMC2209 Treibern im Uart Modus.
- Es hat die Abmessungen eines RPi und würde prima mit einem RPi 3, 4 oder Zero 2 zusammen passen.
- Marlin: https://github.com/thinkyhead/Marlin/tree/bf2_wip_rp2040_skr_pico_PR
- Benötigt bei Entnahme von mehr als 0,9A pro Treiber aktive Kühlung.


Raspberry Pi 3
Model A+
BIGTREETECH


BIGTREETECH




E
X
Y
Z1
Z2
USB
USB_DP D+
USB_DM D-
Motor Driver
Motor UART
BIGTREE TECH
FAN3 FAN2 FAN1 Laser
HE
HB
PROBE SERVOS
TH1 TH0 X-STOP Y-STOP Z-STOP
Neoptixel1 E0-STOP

Klipper Konfiguration für Ender 3 mit BL-Touch

```
[include fluidd.cfg]
#[include adxl.cfg]
[include kiauh_macros.cfg]
[include macros.cfg]
[include start_end_macros.cfg]

[mcu]
serial: /dev/serial/by-id/usb-Klipper_rp2040_3672894954322E18-if00

[printer]
kinematics: cartesian
max_velocity: 300
max_accel: 3000
max_accel_to_decel: 1500
max_z_velocity: 5
square_corner_velocity: 5
max_z_accel: 100

[input_shaper]
shaper_freq_x: 98.8
shaper_type_x: mzv
shaper_freq_y: 40.8
shaper_type_y: mzv

[gcode_arcs]

[stepper_x]
step_pin: gpio11
dir_pin: !gpio10
enable_pin: !gpio12
microsteps: 16
```

```
full_steps_per_rotation: 200
rotation_distance: 40
endstop_pin: ^gpio4
# endstop_pin: tmc2209_stepper_x:virtual_endstop
# homing_retract_dist: 0
position_endstop: 0
position_max: 225
homing_speed: 100

[tmc2209 stepper_x]
uart_pin: gpio9
tx_pin: gpio8
uart_address: 0
run_current: 1
hold_current: 0.7
stealthchop_threshold: 0
# diag_pin: ^gpio4
# driver_SGTHRS: 100

[stepper_y]
step_pin: gpio6
dir_pin: !gpio5
enable_pin: !gpio7
microsteps: 16
full_steps_per_rotation: 200
rotation_distance: 40
endstop_pin: ^gpio3
# endstop_pin: tmc2209_stepper_y:virtual_endstop
# homing_retract_dist: 0
position_endstop: 0
position_max: 225
homing_speed: 100

[tmc2209 stepper_y]
uart_pin: gpio9
tx_pin: gpio8
uart_address: 2
run_current: 0.75
hold_current: 0.5
stealthchop_threshold: 0
diag_pin: ^gpio3
driver_SGTHRS: 100

[stepper_z]
step_pin: gpio19
dir_pin: gpio28
enable_pin: !gpio2
microsteps: 16
full_steps_per_rotation: 200
rotation_distance: 8
# endstop_pin: ^gpio25
```

```
endstop_pin:probe: z_virtual_endstop
position_min: -5
position_max: 255
homing_speed: 35

[tmc2209 stepper_z]
uart_pin: gpio9
tx_pin: gpio8
uart_address: 1
run_current: 0.7
hold_current: 0.5
stealthchop_threshold: 0

[extruder]
step_pin: gpio14
dir_pin: !gpio13
enable_pin: !gpio15
microsteps: 16
rotation_distance: 22.230
nozzle_diameter: 0.4
filament_diameter: 1.75
heater_pin: gpio23
sensor_type: EPCOS 100K B57560G104F
sensor_pin: gpio27
control = pid
pid_kp = 30.959
pid_ki = 1.433
pid_kd = 167.179
min_temp: 0
max_temp: 250
min_extrude_temp: 180
pressure_advance = 0.40
pressure_advance_smooth_time: 0.040

[tmc2209 extruder]
uart_pin: gpio9
tx_pin: gpio8
uart_address: 3
run_current: 0.7
hold_current: 0.5
stealthchop_threshold: 0

# [filament_switch_sensor runout_sensor]
# switch_pin: ^gpio16
# pause_on_runout: True

# [filament_motion_sensor smart_sensor]
# switch_pin: ^gpio16
# detection_length: 2.5

[heater_bed]
```

```
heater_pin: gpio24
sensor_type: EPCOS 100K B57560G104F
sensor_pin: gpio26
#control: pid
#pid_Kp=71.830
#pid_Ki=1.800
#pid_Kd=716.505
min_temp: 0
max_temp: 110

[fan]
pin: gpio17

[heater_fan hotend_fan]
pin: gpio18
heater: extruder
heater_temp: 50.0

[safe_z_home]
home_xy_position: 110, 110 # Change coordinates to the center of your print
bed
speed: 100
z_hop: 10                 # Move up 10mm
z_hop_speed: 80

[bed_screws]
screw1: 30.5, 37
screw2: 30.5, 207
screw3: 204.5, 207
screw4: 204.5, 37
screw5: 110, 110

[bltouch]
sensor_pin: gpio22
control_pin: gpio29
#z_offset: 0.2
x_offset: -42
y_offset:0
samples: 2

[bed_mesh]
speed: 150
horizontal_move_z: 5
mesh_min: 20, 30
mesh_max: 170, 210
probe_count: 5, 3


[temperature_sensor Board_MCU]
sensor_type: temperature_mcu
min_temp: 0
```

```
max_temp: 100

[temperature_sensor Raspberry_Pi]
sensor_type: temperature_host
min_temp: 0
max_temp: 100

#[neopixel board_rgb]
#pin: gpio24
#chain_count: 1
#color_order: GRB
#initial_RED: 0
#initial_GREEN: 0.5
#initial_BLUE: 0 # Paste here and save your klipper configuration

#*# <---------------------- SAVE_CONFIG ---------------------->
#*# DO NOT EDIT THIS BLOCK OR BELOW. The contents are auto-generated.
#*#
#*# [bltouch]
#*# z_offset = 2.050
#*#
#*# [bed_mesh Magnet plate]
#*# version = 1
#*# points =
#*#     -0.326250, -0.450000, -0.507500, -0.567500, -0.586250
#*#     -0.361250, -0.488750, -0.567500, -0.561250, -0.490000
#*#     -0.351250, -0.462500, -0.497500, -0.502500, -0.466250
#*# tension = 0.2
#*# min_x = 20.0
#*# algo = lagrange
#*# y_count = 3
#*# mesh_y_pps = 2
#*# min_y = 30.0
#*# x_count = 5
#*# max_y = 210.0
#*# mesh_x_pps = 2
#*# max_x = 170.0
#*#
#*# [heater_bed]
#*# control = pid
#*# pid_kp = 74.810
#*# pid_ki = 1.827
#*# pid_kd = 765.872
#*#
#*# [bed_mesh default]
#*# version = 1
#*# points =
#*#     -0.012500, -0.151250, -0.202500, -0.211250, -0.173750
#*#     0.207500, 0.043750, -0.051250, -0.112500, -0.077500
#*#     0.441250, 0.253750, 0.107500, -0.008750, -0.052500
#*# tension = 0.2
```

```
#*# min_x = 20.0
#*# algo = lagrange
#*# y_count = 3
#*# mesh_y_pps = 2
#*# min_y = 30.0
#*# x_count = 5
#*# max_y = 210.0
#*# mesh_x_pps = 2
#*# max_x = 170.0
```