Marlin 2.0.5.3 Settings for BIGTREE SKR 1.4_Turbo, TMC5160 to drive Ultimaker UM2+ 3D Printer

this sheet version: 0.2 — added info about removing R25, R26

Required Hardware

1	BTT SKR 1.4 Turbo
4	TMC5160 Stepper drivers
1	BTT DCDC Power Module for SKR 1.4
1	PT100 Pre-Amplifier (Ultimaker Style), 3 channel, must use VDD = 3.3 VDC (DIY)
1	MOSFET Adapter Board to run Hotend Fan off of SERVO connector (DIY)

What will these Mods do?

- Enable flicker-free dimmable Case Lighting, using the original Ultimaker Case LED-Strips
- enable PWM-controlled Parts Fan
- enable PWM-controlled 5VDC for use with Hotend Fan
- increase Bed-Heater and Hotend-Heater PWM to 60 Hz to smoothen power consumption (note: you must use PID for Bed Heater). This improves print quality.
- enable ulticontroller display and Clickwheel+LEDs (as published by Anthrix here:...) https://community.ultimaker.com/topic/30786-ultimaker-with-skr-14/

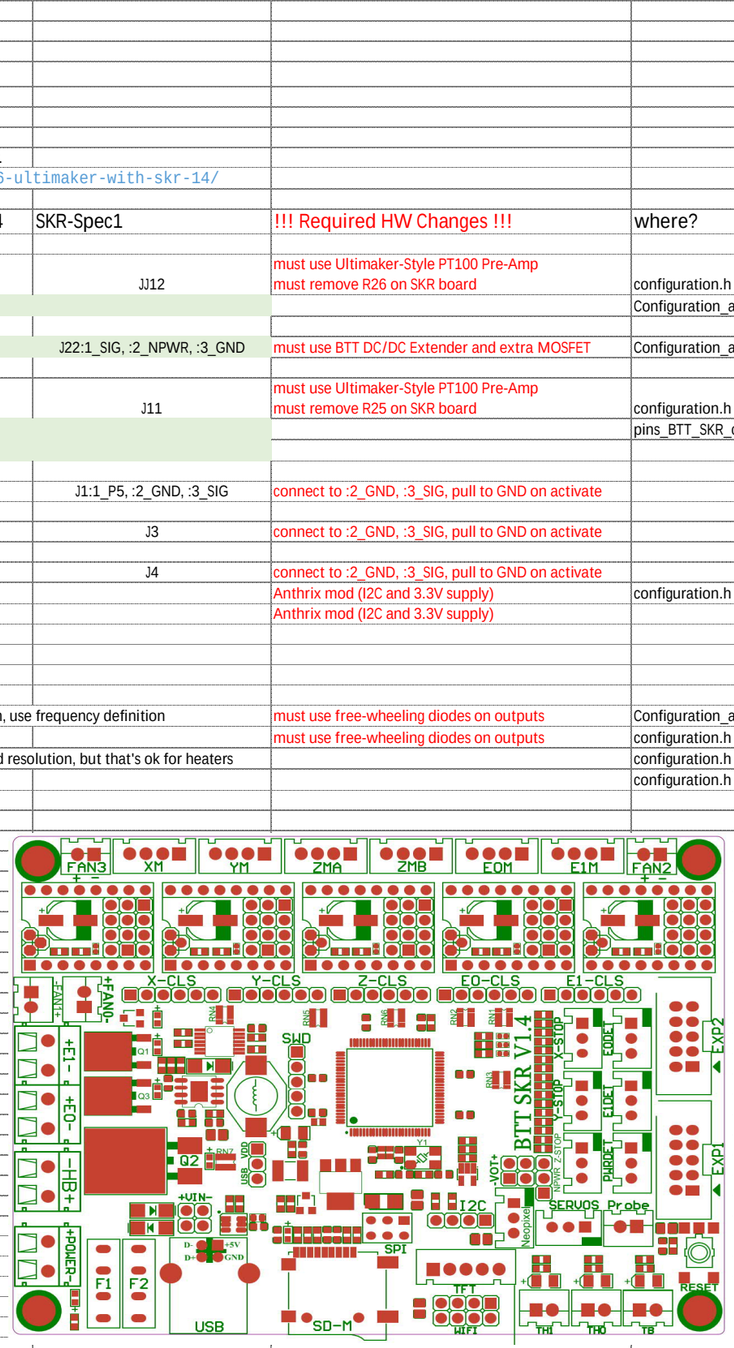
Item	Spec1	Spec2	Spec3	Ultimainboard	SKR 1.4 Port	SKR 1.4	SKR-Spec1	!!! Required HW Changes !!!	where?	File	line	
Bed-Heater	24VDC	SW-PWM	Screw Term	J21:1-2 / Heated-Bed	P_205	HB						
Bed-Temp	PT100		MOLEX 2	J13 / Temp3	P_025	TB	JJ12	must use Ultimaker-Style PT100 Pre-Amp must remove R26 on SKR board	configuration.h	415	#define TEMP_SENSOR_BED 20	
Case Light	24VDC	HF-PWM	MOLEX 2	J15	P_203	FAN0			Configuration_adv-h	431	#define CASE_LIGHT_PIN P2_03	
E-Stepper				J30		E0M						
Hotend-Fan	5VDC	PWM		J34	P_200	SERVOS	J22:1_SIG, :2_NPWR, :3_GND	must use BTT DC/DC Extender and extra MOSFET	Configuration_adv-h	423	#define E0_AUTO_FAN_PIN P2_00	
Hotend-Heater	24VDC	SW-PWM		J21:5-6 / Heater 1	P_207	HE0						
Hotend-Temp	PT100		MOLEX 2	J7	P_024	TH0	J11	must use Ultimaker-Style PT100 Pre-Amp must remove R25 on SKR board	configuration.h	409	#define TEMP_SENSOR_0 20	
Part Fan	24VDC	PWM		J14	P_204	HE1			pins_BTT_SKR_common.h	66	#define FAN1_PIN P2_04	
										86	#define FAN_PIN P2_04	
X-Stepper				J27								
X-Stop				J5	P_129	X-Stop	J1:1_P5, :2_GND, :3_SIG	connect to :2_GND, :3_SIG, pull to GND on activate				
Y-Stepper				J28								
Y-Stop				J8	P_128	Y-Stop	J3	connect to :2_GND, :3_SIG, pull to GND on activate				
Z-Stepper				J29								
Z-Stop				J6	P_127	Z-Stop	J4	connect to :2_GND, :3_SIG, pull to GND on activate				
Ulticontroller E1			2Mx5_0.100	J32		E1DET		Anthrix mod (I2C and 3.3V supply)	configuration.h	1933	#define ULTI_CONTROLLER	
Ulticontroller E2			2Mx5_0.101	J33		E0DET		Anthrix mod (I2C and 3.3V supply)				

PWM frequency for Case Light, Fans_1	P_124 uses 60 Hz PWM, not useful for lighting	HW-PWM frequeny default is too high, use frequency definition	must use free-wheeling diodes on outputs	Configuration_adv-h	384	#define FAST_PWM_FAN_FREQUENCY 31400
PWM frequency for Case Light, Fans_2			must use free-wheeling diodes on outputs	configuration.h	2089	#define FAST_PWM_FAN
Power smoothing on 24VDC	standard SW PWM causes too much ripple	new frequency approx. 60 Hz. reduced resolution, but that's ok for heaters		configuration.h	2101	#define SOFT_PWM_SCALE 3
Ulticontroller Color Wheel				configuration.h	2124	#define PCA9632

Marlin 2.05

```
#include "../lpc1768/pins_BTT_SKR_V1_4.h"
#include "pins_BTT_SKR_common.h"
```

Connector	Connect what:
FAN0:	CASE LIGHT (24 VDC)
E1:	PARTS FAN (24 VDC)
E0:	HOTEND
HB:	HEATER-BED



Connector	Connect what:
EXP1	Ulticontroller w/ modded cable
EXP2	Ulticontroller w/ modded cable

Connector	Connect what:
TH0	PT100 Pre-Amp, Hotend
TB	PT100 Pre-Amp, Heater-Bed
SERVO	HOTEND-FAN (5 VDC), via MOSFET Adapter Board