

STM32F407ZGT6 Black board connector layout

The diagram illustrates the pin connections for the STM32F407ZGT6 microcontroller and its various peripherals. The central block represents the microcontroller, with pins labeled according to the STM32F407ZGT6 pinout. The connections are organized into several sections:

- Top Section:** Includes connections for the LCD (J17 Left, J30 Right), various sensors (J25 TFT_FSCM, J26, J27, J28, J29, J30, J31, J32, J33, J34, J35, J36, J37, J38, J39, J40, J41, J42, J43, J44, J45, J46, J47, J48, J49, J50, J51, J52, J53, J54, J55, J56, J57, J58, J59, J60, J61, J62, J63, J64, J65, J66, J67, J68, J69, J70, J71, J72, J73, J74, J75, J76, J77, J78, J79, J80, J81, J82, J83, J84, J85, J86, J87, J88, J89, J90, J91, J92, J93, J94, J95, J96, J97, J98, J99, J100), and other components (J1, J2, J3, J4, J5, J6, J7, J8, J9, J10, J11, J12, J13, J14, J15, J16, J17, J18, J19, J20, J21, J22, J23, J24, J25, J26, J27, J28, J29, J30, J31, J32, J33, J34, J35, J36, J37, J38, J39, J40, J41, J42, J43, J44, J45, J46, J47, J48, J49, J50, J51, J52, J53, J54, J55, J56, J57, J58, J59, J60, J61, J62, J63, J64, J65, J66, J67, J68, J69, J70, J71, J72, J73, J74, J75, J76, J77, J78, J79, J80, J81, J82, J83, J84, J85, J86, J87, J88, J89, J90, J91, J92, J93, J94, J95, J96, J97, J98, J99, J100).
- Bottom Section:** Includes connections for the LCD (J17 Left, J30 Right), various sensors (J25 TFT_FSCM, J26, J27, J28, J29, J30, J31, J32, J33, J34, J35, J36, J37, J38, J39, J40, J41, J42, J43, J44, J45, J46, J47, J48, J49, J50, J51, J52, J53, J54, J55, J56, J57, J58, J59, J60, J61, J62, J63, J64, J65, J66, J67, J68, J69, J70, J71, J72, J73, J74, J75, J76, J77, J78, J79, J80, J81, J82, J83, J84, J85, J86, J87, J88, J89, J90, J91, J92, J93, J94, J95, J96, J97, J98, J99, J100), and other components (J1, J2, J3, J4, J5, J6, J7, J8, J9, J10, J11, J12, J13, J14, J15, J16, J17, J18, J19, J20, J21, J22, J23, J24, J25, J26, J27, J28, J29, J30, J31, J32, J33, J34, J35, J36, J37, J38, J39, J40, J41, J42, J43, J44, J45, J46, J47, J48, J49, J50, J51, J52, J53, J54, J55, J56, J57, J58, J59, J60, J61, J62, J63, J64, J65, J66, J67, J68, J69, J70, J71, J72, J73, J74, J75, J76, J77, J78, J79, J80, J81, J82, J83, J84, J85, J86, J87, J88, J89, J90, J91, J92, J93, J94, J95, J96, J97, J98, J99, J100).

The diagram uses color-coding to distinguish between different sections of the board layout. The central block is yellow, the top section is green, the bottom section is blue, and the right section is red. The connections are labeled with pin numbers and component names, providing a comprehensive overview of the board's hardware configuration.

3D Printer RAMPS board for STM32F407ZGT6 Chinese black edition with Touch TFT ILI9341 320x240

Heating block

USB

I2C

UART

SPI

[illegible]

Power

Diagram showing power input connections for the Raspberry Pi 4B. The Pi is represented by a yellow rectangle with pins 1-4 on the left and 5-8 on the right. Power is supplied via two 4-pin headers: J54 (left) and J46 (right). J54 pins are labeled 4 (+24V), 3 (+12V), 2 (+5V), and 1 (+3.3V). J46 pins are labeled 4 (+24V), 3 (+12V), 2 (+5V), and 1 (+3.3V). The Pi's power pins are connected as follows: Pin 1 to J54 pin 1, Pin 2 to J54 pin 2, Pin 3 to J54 pin 3, Pin 4 to J54 pin 4, Pin 5 to J46 pin 1, Pin 6 to J46 pin 2, Pin 7 to J46 pin 3, and Pin 8 to J46 pin 4.

Limit switches

Diagram showing limit switch connections for the Raspberry Pi 4B. The Pi is represented by a yellow rectangle with pins 1-4 on the left and 5-8 on the right. Limit switches are connected via three 3-pin headers: J14 (left), J15 (middle), and J16 (right). J14 pins are labeled 1 (X MIN), 2 (X-), and 3 (X+). J15 pins are labeled 1 (Y MIN), 2 (Y-), and 3 (Y+). J16 pins are labeled 1 (Z MIN), 2 (Z-), and 3 (Z+). The Pi's limit switch pins are connected as follows: Pin 1 to J14 pin 1, Pin 2 to J14 pin 2, Pin 3 to J14 pin 3, Pin 4 to J15 pin 1, Pin 5 to J15 pin 2, Pin 6 to J15 pin 3, Pin 7 to J16 pin 1, Pin 8 to J16 pin 2, and Pin 9 to J16 pin 3.

Servos

Diagram showing servo motor connections for the Raspberry Pi 4B. The Pi is represented by a yellow rectangle with pins 1-4 on the left and 5-8 on the right. Servo motors are connected via three 3-pin headers: J53 (left), J52 (middle), and J51 (right). J53 pins are labeled 1 (PowerSelect), 2 (+5V), and 3 (+3.3V). J52 pins are labeled 1 (SERVO0), 2 (SERVO0), and 3 (SERVO0). J51 pins are labeled 1 (SERVO1), 2 (SERVO1), and 3 (SERVO1). The Pi's servo pins are connected as follows: Pin 1 to J53 pin 1, Pin 2 to J53 pin 2, Pin 3 to J53 pin 3, Pin 4 to J52 pin 1, Pin 5 to J52 pin 2, Pin 6 to J52 pin 3, Pin 7 to J51 pin 1, Pin 8 to J51 pin 2, and Pin 9 to J51 pin 3.

SD Card

Diagram showing SD card connections for the Raspberry Pi 4B. The Pi is represented by a yellow rectangle with pins 1-4 on the left and 5-8 on the right. An SD card is connected via a 9-pin header J50. The SD card pins are labeled 1 (SDIO_D2), 2 (SDIO_D3), 3 (SDIO_CMD), 4 (+3.3V), 5 (SDIO_SCK), 6 (SDIO_D0), 7 (SDIO_D1), 8 (SDIO_DET), and 9 (SDIO_DET). The Pi's SD card pins are connected as follows: Pin 1 to J50 pin 1, Pin 2 to J50 pin 2, Pin 3 to J50 pin 3, Pin 4 to J50 pin 4, Pin 5 to J50 pin 5, Pin 6 to J50 pin 6, Pin 7 to J50 pin 7, Pin 8 to J50 pin 8, and Pin 9 to J50 pin 9.

Thermistors

The diagram illustrates four identical thermistor measurement channels. Each channel consists of a thermistor (TEMP_0, TEMP_1, TEMP_B, TEMP_C) connected to a 4K7 resistor (R1, R2, R3, R4) and a 10uF 16V capacitor (C1, C2, C3, C4). The thermistors are connected to a +3.3V supply through the resistors. The capacitors are connected to ground. The thermistors are labeled TEMP_0, TEMP_1, TEMP_B, and TEMP_C, and the resistors are labeled R1, R2, R3, and R4. The capacitors are labeled C1, C2, C3, and C4.

Fans

On the PCB can be m
replacement: instead of this BUK9
DMN6040SSD = much
SQ4946AEY = similar
All FETs are to the 6
reserve, because pow
The important thing i
Threshold Voltage is

The diagram illustrates a fan control circuit. At the top, a power source J56 provides +24V, +12V, and +5V. Three MOSFETs, Q4, Q5, and Q6 (all BUK9K17-60E), are used to drive three fans: FAN2, FAN3, and FAN0. Each fan is connected to a MOSFET through a 10K resistor (R12, R13, R10, R11, R16, R17) and a 0603 component. The fans are connected to the MOSFETs via J10, J9, J43, and J11. A note on the right discusses PCB replacement options.

17-60E = max. current 25A
 low cost low max. current 5A
 price, low max. current 7A
 DV operating voltage with
 er supply can be up to 24V
 s that VGS(th) Gate-Source
 very low max. to 2.5V

Jarin's Sheet: / File: RAMPS_STM32F407_TFT_Touch.sch	
Title: RAMPS STM32F407Black	
Size: A3	Date: 01.05.2020
KiCad E.D.A. kicad (5.1.5)-3	
Rev: 1/1	