
*1 Note on using multiple Power Supply Units (PSUs):
1. Ensure that you wire each PSU's earth grounds together (one earth ground from each PSU must go back to a common point that then gets attached to the earth ground of the AC input power connector).
2. Wire each PSU's negative terminals together (one negative terminal from each PSU must go back to a common point that then gets attached to the negative side of the AC input power connector).
*3 Note if using PSU of 24V for "MB_POWER_IN":
1. Calculate the maximum current draw from your 4 heaters; (13 Amps maximum for: 7 Fans, 12V rail, 5V rail and 3.3V rail); you may need to change out the "MB_POWER_IN FUSE" (F3) from 15 Amps to 20 Amps (Bigtreetech supplies one with each Octopus Pro V1.0 board).
D1-DIAG PIN; V_R - V_{ref} (D/D0/D1) V_{ref}-Voltage Reference
SPI / UART
3/2 2/1 1/0
5 V DC
2 - M3; M2 OR 3 - M3; M2
1 - M2; M1 2 - M2; M1
0 - M1; M0 1 - M1; M0
V_R; V_R location depends on the Stepper Driver Board
UART
(CS)
DRIVER0: PC4
DRIVER1: PD11
DRIVER2: PC6
DRIVER3: PC7
DRIVER4: PF2
DRIVER5: PE4
DRIVER6: PE1
DRIVER7: PD3
Only one (1) Jumper is needed for this mode. Jumper located in column MS3/2 and row 1& 2.
SPI
DRIVER0-CS PC4
DRIVER1-CS PD11
DRIVER2-CS PC6
DRIVER3-CS PC7
DRIVER4-CS PF2
DRIVER5-CS PE4
DRIVER6-CS PE1
DRIVER7-CS PD3
MOSI PA7
MISO PA6
SCK PA5
Four (4) Jumpers are needed for this mode. Jumpers located in: columns MISO, CS, SCK, MOSI and rows 1 & 2.
NOTE:
Things to be aware of when using the SPI bus #1: The Stepper Motor Drivers share the same SPI bus as EXP2, and the MAX31865 chip (i.e. PT100, PT1000). They only share: MISO, MOSI and SCK lines. They have separate CS lines.
https://en.wikipedia.org/wiki/Serial_Peripheral_Interface
Motor Power Selection Jumpers
MOTOR_POWER_IN
DCIN MOTOR_POWER 12 ~ 60 V DC
DCIN MB_POWER 15 ~ 28 V DC [V_{in}] (24 VDC)
DCIN BED_POWER 12 ~ 28 V DC (24 VDC)
HEATED BED
BED_OUT
PA1
Motor_0 Motor_1 Motor_2.1 Motor_2.2 Motor_3 Motor_4 Motor_5 Motor_6 Motor_7
Z Sockets Wired in Parallel
DRIVER0 DRIVER1 DRIVER2 DRIVER3 DRIVER4 DRIVER5 DRIVER6 DRIVER7
A resource for hooking up 2-wire, 3-wire or 4 wire PT100/PT1000 Temperature Sensor: https://cdn-learn.adafruit.com/downloads/pdf/adafruit-max31865-rtd-pt100-amplifier.pdf. See page 14, "How To Wire Up". Everytime this manual talks about soldering bridges together, just ignore that information. The PT100/PT1000 DIP switch on the Octopus Pro board, (if set appropriately), will automatically bridge the appropriate contacts on the PT100/PT1000 Connector!
Power Selection Jumper
STM32F446ZET6
https://www.st.com/resource/en/datasheet/stm32f446re.pdf
https://www.st.com/resource/en/datasheet/dm00071990.pdf
STM32F429ZGT6
BIGTREETECH Octopus Pro
PT100/PT1000 DIP SWITCH
MAX31865 Chip
Redesigned Octopus Pro V1.0 PIN MAP BY GadgetAngel and Thomas White
GadgetAngel
WARNING!! ONLY PLACE ONE JUMPER ACROSS THE FAN VOLTAGE SELECTION HEADERS, ANY MORE THAN ONE CAN CONNECT TWO/THREE POWER SUPPLIES TOGETHER, AND THIS WILL DAMAGE THIS BOARD. THE SAME RESULT CAN HAPPEN IF A JUMPER IS PLACED VERTICALLY.
+HE0 PA2 +HE1 PA3 +HE2 PB10 +HE3 PB11
FAN0 PA8 FAN1 PE5 FAN2 PD12 FAN3 PD13 FAN4 PD14 FAN5 PD15 FAN6 FAN7
'Diag Jumper' Block Labels
MOT0-DIAG0 PG6 MOT1-DIAG1 PG9 MOT2-DIAG2 PG10 MOT3-DIAG3 PG11 MOT4-DIAG4 PG12 MOT5-DIAG5 PG13 MOT6-DIAG6 PG14 MOT7-DIAG7 PG15
TB PF3 T0 PF4 T1 PF5 T2 PF6 T3 PF7
SPI3 Header
PS_ON 'Diag Jumper' Block
POWER_DET PC0
PE11
BLTouch
RGB_LED
CAN BUS RJ11
RX1 PD0
TX1 PD1
PG6 Stop_0 PG9 Stop_1 PG10 Stop_2 PG11 Stop_3
PG12 Stop_4 PG13 Stop_5 PG14 Stop_6 PG15 Stop_7
PROBE
EXP1 EXP2
Micro SD Card Reader
WIFI Socket
USB Flash Drive V2.0 Type-A
15 For stepper motor drivers, the heated bed, circuit logic, fans, & hotend heaters.
WARNING!! – ONLY PLACE ONE JUMPER VERTICALLY ACROSS THE PROBE VOLTAGE SELECTION HEADER, ANY MORE THAN ONE CAN CONNECT TWO/THREE POWER SUPPLIES TOGETHER, AND THIS WILL DAMAGE THIS BOARD. THE SAME RESULT CAN HAPPEN IF A JUMPER IS PLACED HORIZONTALLY.
WIFI (BIGTREETECH ESP8266 module or BTT ESP-07S module)
Micro SD Card Reader
D2 PC10 D3 PC11 CMD PD2 3.3V CLK PC12 GND D0 PC8 D1 PC9 DET PC14
BIGTREETECH ESP8266 Module
BTT ESP-07 Module
MAX31865
MOSI PA7
MISO PA6
SCK PA5
CS PF8
Note:
If you are unsure about any of the information provided on this PIN Diagram, please ask for help from the 3D printer community, check the Processor's data sheet and the board's schematic diagram.
STALLGUARD (Sensor-less Homing)
PT100/PT1000 DIP Switch Settings
ON OFF *2
*2 Note the default setting is all DIP switches set to OFF (i.e. Please set DIP Switches before you install the board!!!).
*4 The integrated MAX31865 is hardware configured from the factory with the "2/4" pads bridged with a 0 Ω resistor (as seen in the red box in the picture to the left). This factory default setup is for PT100/PT1000 sensors that have a 2-wire or 4-wire arrangement.
If you are using a 3-wire PT100/PT1000 sensor, then you will need to move the 0 Ω resistor to the "3" pads on the board (as seen in the blue box in the picture to the left).
*7 Note on using RGB Header:
If you are using "NeoPixels" and they are NOT operating as expected, please try the following: Additional Equipment needed: 100 Ohm resistor, 1000 uF Capacitor, and use a seperate 5V PSU. DO NOT use the Octopus to drive the LEDS. The 5V PSU and Octopus board should have a shared GND (V-).
Klipper Building Options for The Octopus Pro (F446): Clock Frequency : (12 MHz)
Klipper Building Options for The Octopus Pro (F429): Clock Frequency: (8 MHz)
For F429: all options the same as F446 except for Clock Frequency & Processor model!. The Example below is for the F446.
*5 For F429 choose STM32F429 *6 For F429 choose 8 MHz

1	2	3	4	Sensor model
ON	ON	ON	OFF	Two-wire PT100 Sense Ω = 430
ON	ON	OFF	ON	Two-wire PT1000 Sense Ω = 4300
OFF	ON	ON	OFF	Three-wire PT100 Sense Ω = 430
OFF	ON	OFF	ON	Three-wire PT1000 Sense Ω = 4300
OFF	OFF	ON	OFF	Four-wire PT100 Sense Ω = 430
OFF	OFF	OFF	ON	Four-wire PT1000 Sense Ω = 4300

EN	STEP	DIR	CS		EN	STEP	DIR	CS
DRIVER0								
PF14	PF13	PF12	PC4	DRIVER1	PF15	PG0	PG1	PD11
DRIVER2 PG5	PF11	PG3	PC6	DRIVER3	PA0	PG4	PC1	PC7
DRIVER4 PG2	PF9	PF10	PF2	DRIVER5	PF1	PC13	PF0	PE4
DRIVER6 PD4	PE2	PE3	PE1	DRIVER7	PE0	PE6	PA14	PD3