*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 attched 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 attched to the negative side of the AC input power connector).

D1-DIAG PIN; V_R - V_{ref}
(D/D0/D1) V_{ref}-Voltage Reference

0	V	DC
RST: 3/2	2/1	1/0
SLP: 3.3	V	DC

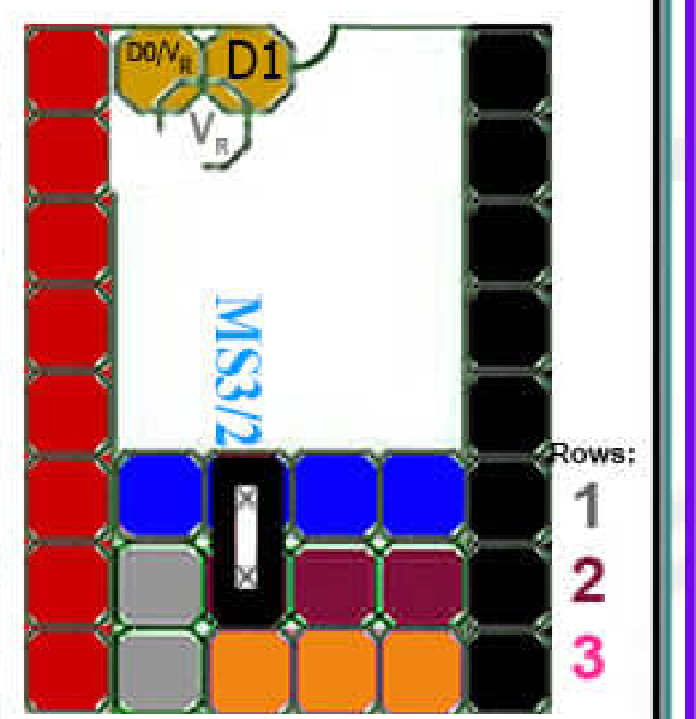
2 - M3; M2	OR	3 - M3; M2
1 - M2; M1		2 - M2; M1
0 - M1; M0		1 - M1; M0

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

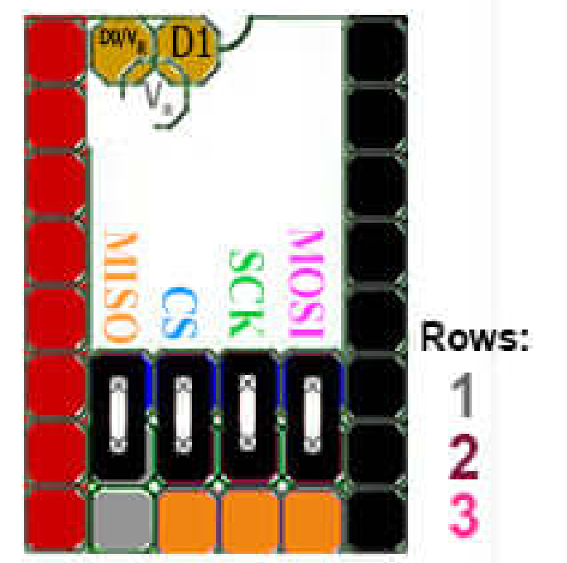


Only one (1) Jumper is needed for this mode.
Jumper located in column MS3/2 and row 1& 2.

SPI

MOSI	PA7
MISO	PA6
SCK	PA5 *3

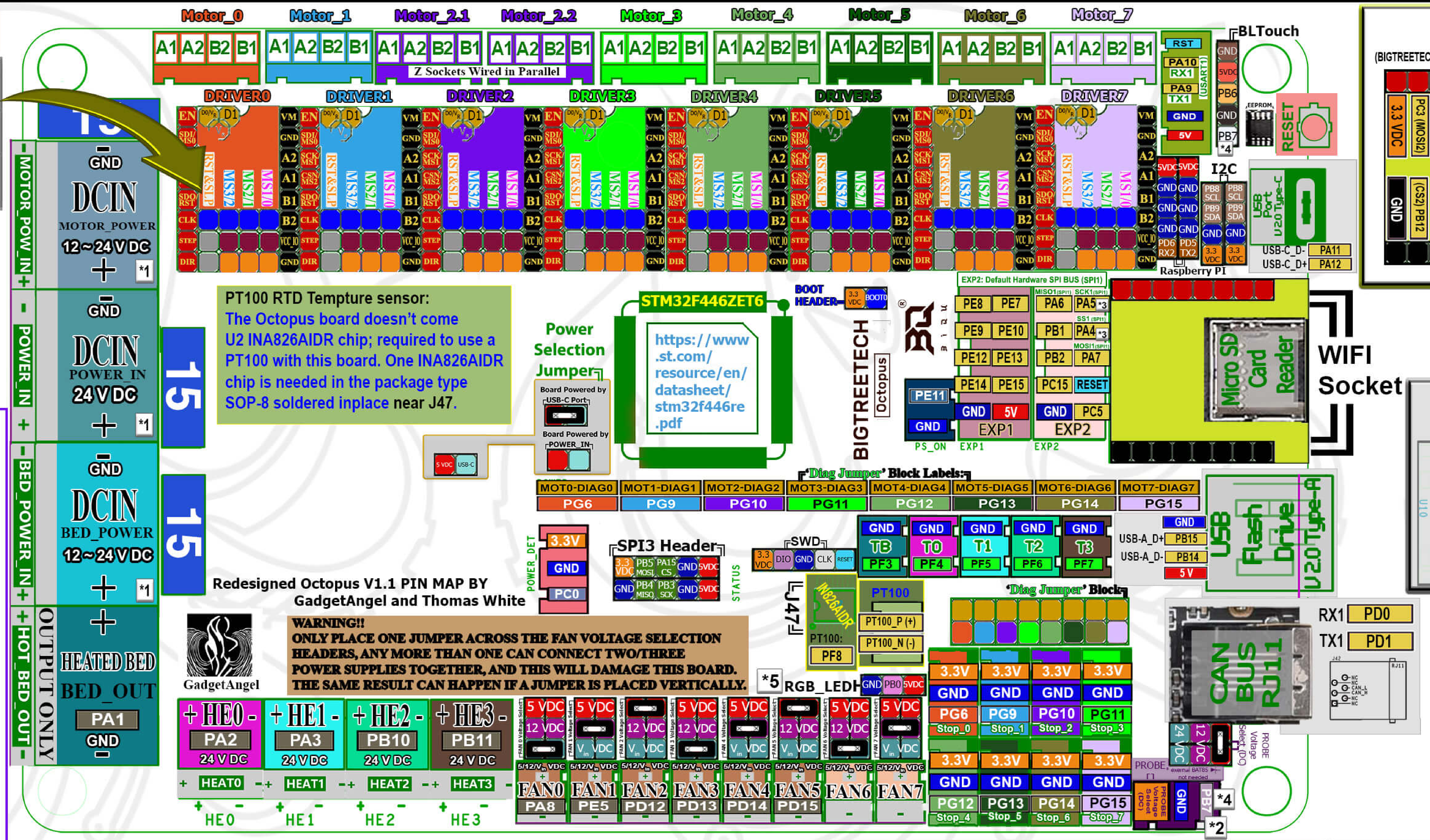
DRIVER0-CS	PC4
DRIVER1-CS	PD11
DRIVER2-CS	PC6
DRIVER3-CS	PC7
DRIVER4-CS	PF2
DRIVER5-CS	PE4
DRIVER6-CS	PE1
DRIVER7-CS	PD3



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, They only share: MISO, MOSI and SCK lines. They have separate CS lines. https://en.wikipedia.org/wiki/Serial_Peripheral_Interface



PT100 RTD Tempture sensor:
The Octopus board doesn't come U2 INA826AIDR chip; required to use a PT100 with this board. One INA826AIDR chip is needed in the package type SOP-8 soldered inplace near J47.

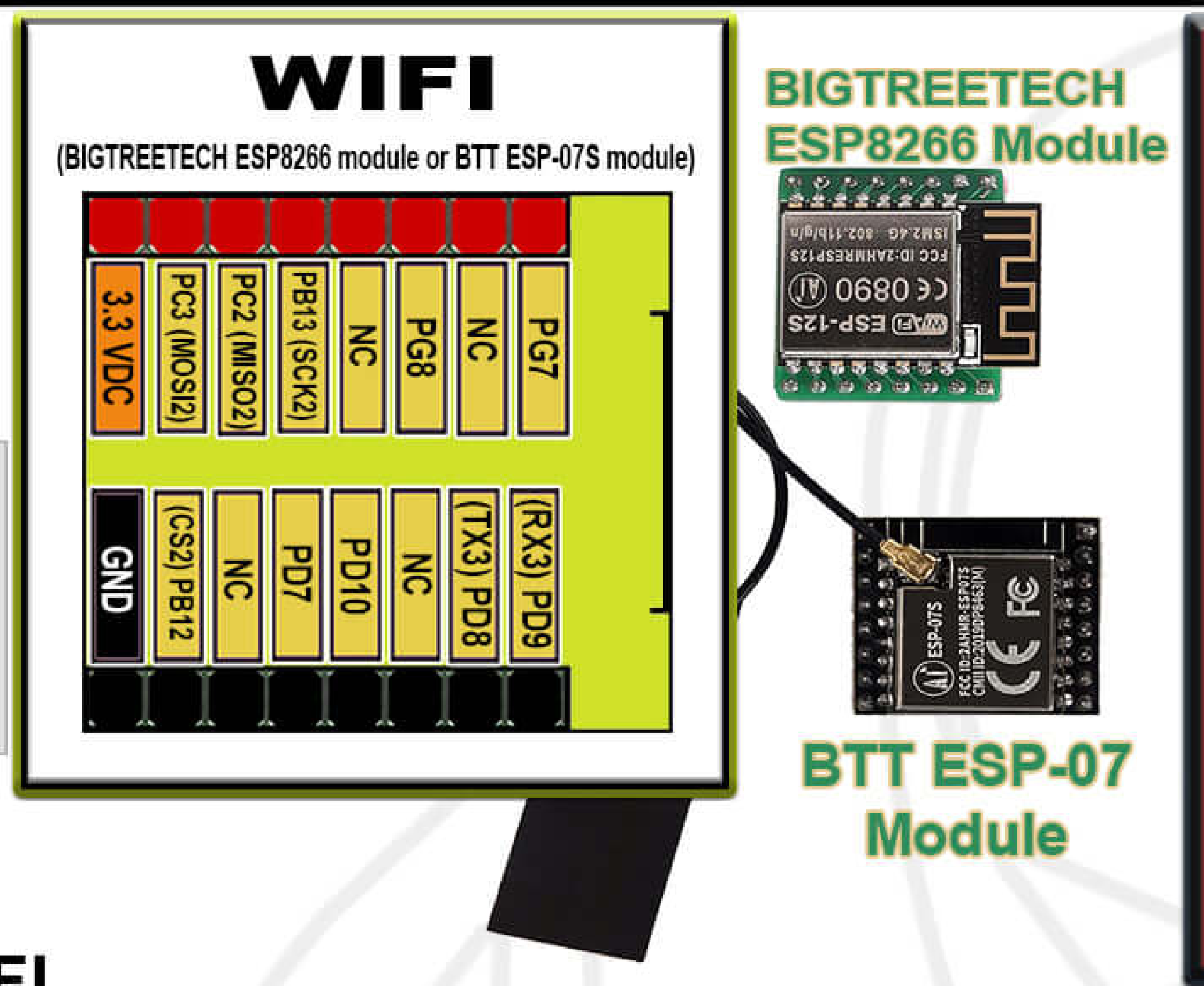
Redesigned Octopus V1.1 PIN MAP BY
GadgetAngel and Thomas White

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.

15 For stepper motor drivers, the heated bed, circut logic, fans, & hotend heaters.

	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

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.

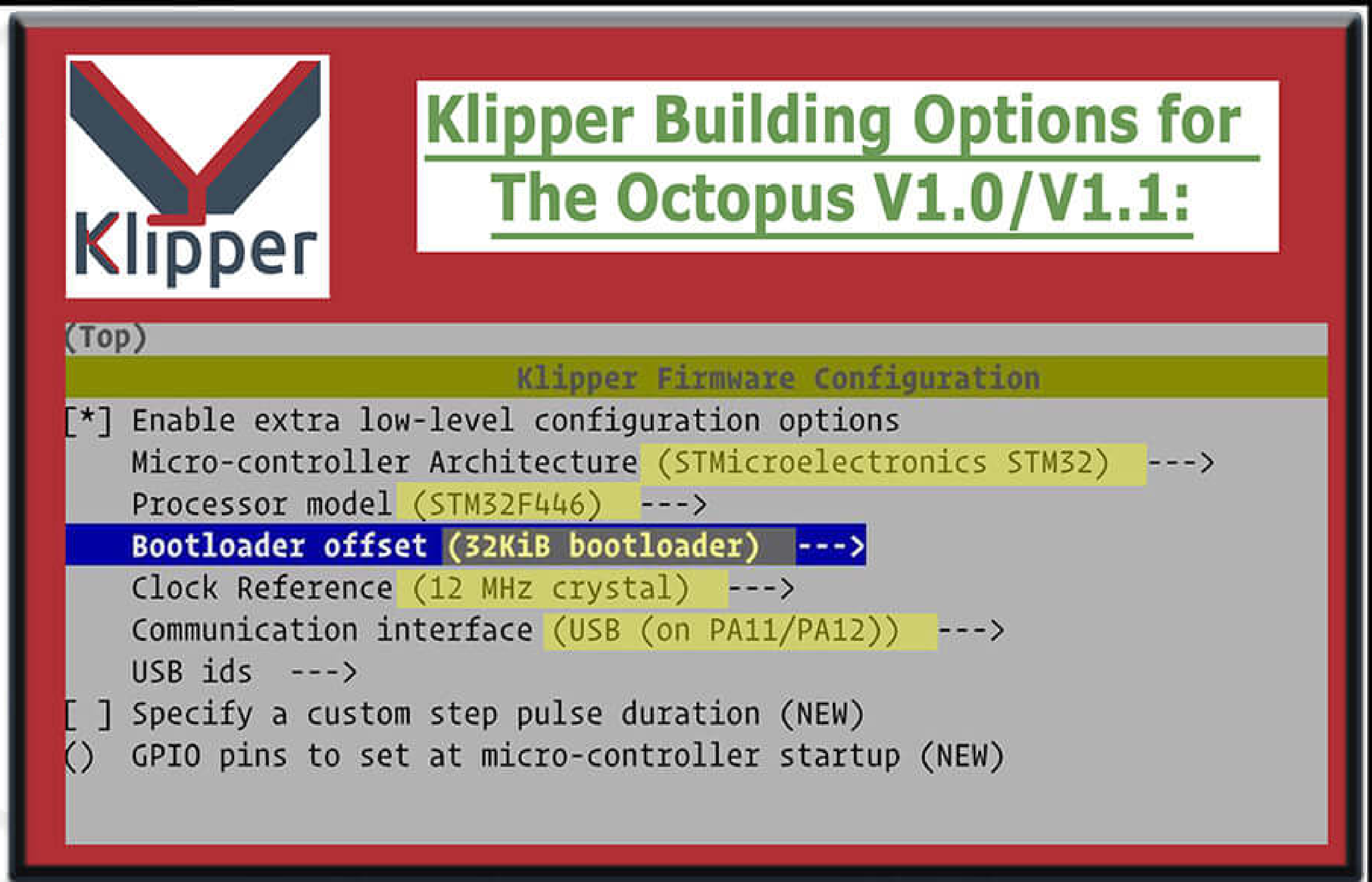


WIFI Socket

Micro SD Card Reader

D2	PC10
D3	PC11
CMD	PD2
	3.3V
CLK	PC12
	GND
D0	PC8
D1	PC9
DET	PC14

Klipper Building Options for The Octopus V1.0/V1.1:



```
(Top)
                     Klipper Firmware Configuration
[*] Enable extra low-level configuration options
    Micro-controller Architecture (STMicroelectronics STM32)  --->
    Processor model (STM32F446)  --->
    Bootloader offset (32KiB bootloader)  --->
    Clock Reference (12 MHz crystal)  --->
    Communication interface (USB (on PA11/PA12))  --->
    USB ids  --->
[ ] Specify a custom step pulse duration (NEW)
()  GPIO pins to set at micro-controller startup (NEW)
```

Marlin 2.0.x Firmware Changes:

In Platformio.ini file change: `default_envs = BIGTREE_OCTOPUS_V1`

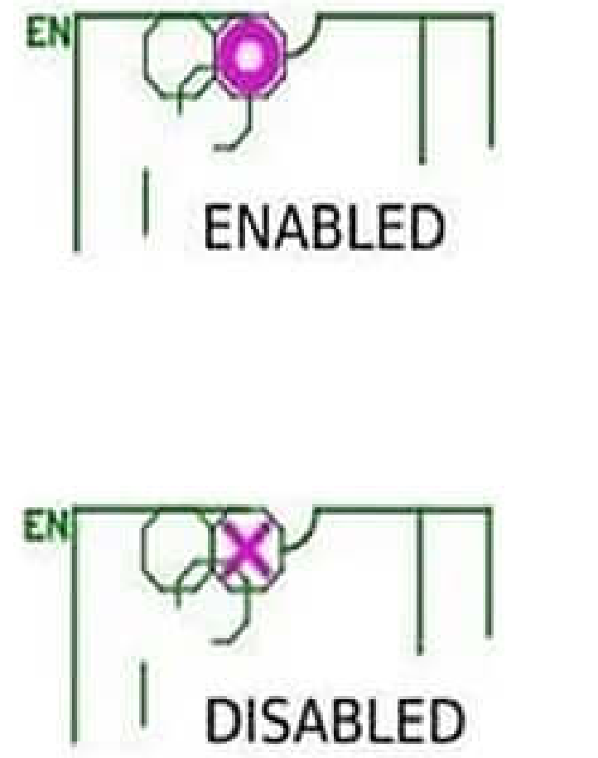
In Configuration.h file change:

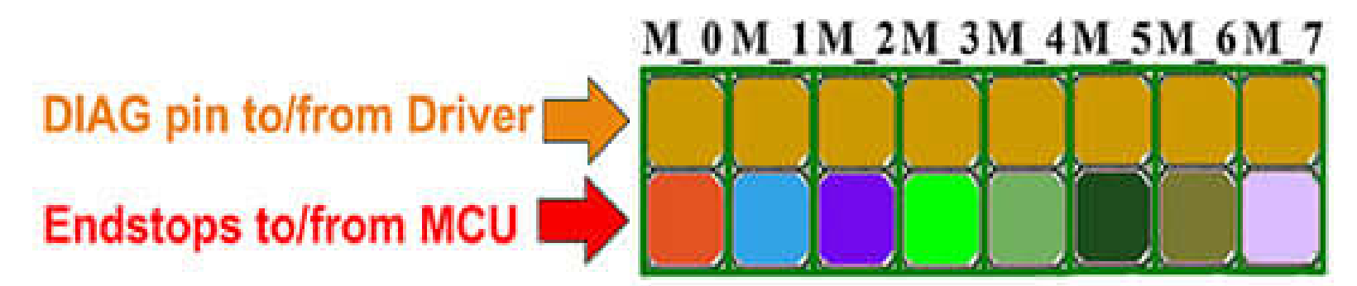
```
#define SERIAL_PORT -1
#define SERIAL_PORT_2 1
#define MOTHERBOARD
        BOARD_BTT_OCTOPUS_V1_1
```

Note: Serial Port definitions in Marlin 2.0.x for GTR Board:
-1: USB Port; 1: TFT Port; 3: WIFI Port;
2: TX2/RX2 on Raspberry Pi Connector

STALLGUARD (Sensor-less Homing)

	DIAG PIN	ENDSTOP	
M_0	MOT0-DIAG0	PG6	Stop_0
M_1	MOT1-DIAG1	PG9	Stop_1
M_2	MOT2-DIAG2	PG10	Stop_2
M_3	MOT3-DIAG3	PG11	Stop_3
M_4	MOT4-DIAG4	PG12	Stop_4
M_5	MOT5-DIAG5	PG13	Stop_5
M_6	MOT6-DIAG6	PG14	Stop_6
M_7	MOT7-DIAG7	PG15	Stop_7



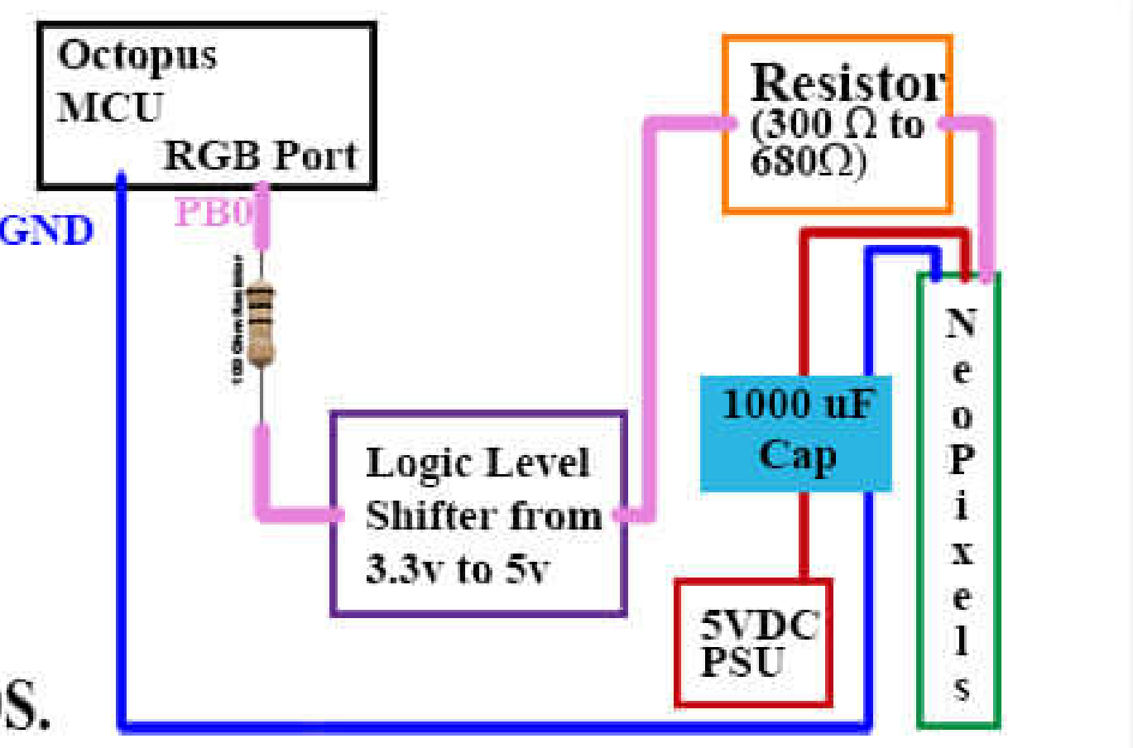


Note1 Concerning the TMC2209/TMC2226 in UART Mode ONLY:
If using limit switches/enstops, ensure the DIAG pin is NOT connected to the MCU Endstop (i.e., ensure the 'Diag Jumper' is removed).

Note2 For TMC2209/TMC2226 in UART Mode ONLY:
if you are using it for your extruder motor and you want to use a filament runout sensor, ensure the DIAG/DIAG1/DIAG0 PIN is NOT connected to the MCU Endstop to allow the filament runout sensor to work properly (i.e., ensure the 'Diag Jumper' is removed for the corresponding extruder motor).

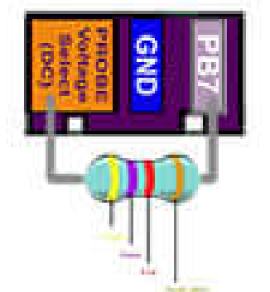
*5 Note on using RGB Header:

If you are using "NeoPixels" and they are NOT orperating as expected, please try the following: Additional Equipment needed: Logic Level Shifter, 300-680 Ohm resistor, 100 Ohm resistor, 1000 uF Capacitor, and use a sepereate 5V PSU. DO NOT use the Octopus to drive the LEDS.



*2 In firmware enable the internal pull-down resistor on the probe input pin (PB7) in order for the probe to generate an output signal.

If using a "NPN" style probe add an external 4k7 pull up resistor between DC and PB7 as follows:



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 board's schematic diagram.

***3 THE PIN IS NOT 5V TOLERANT! IT IS ONLY 3.6 VOLTS TOLERANT. PLEASE SEE THE STM32F446xC/E DATASHEET.**

***4 The PIN PB7 is a shared signal PIN between the BLTouch header and the PROBE connector. You CAN NOT use both a BLTouch and PROBE!**