

**Note on using multiple Power Supply Units (PSUs):**

- 1-1. 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 terminal).
- 1-2. Wire each PSU's negative (-) terminals together so they're connected to each other.

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

**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.

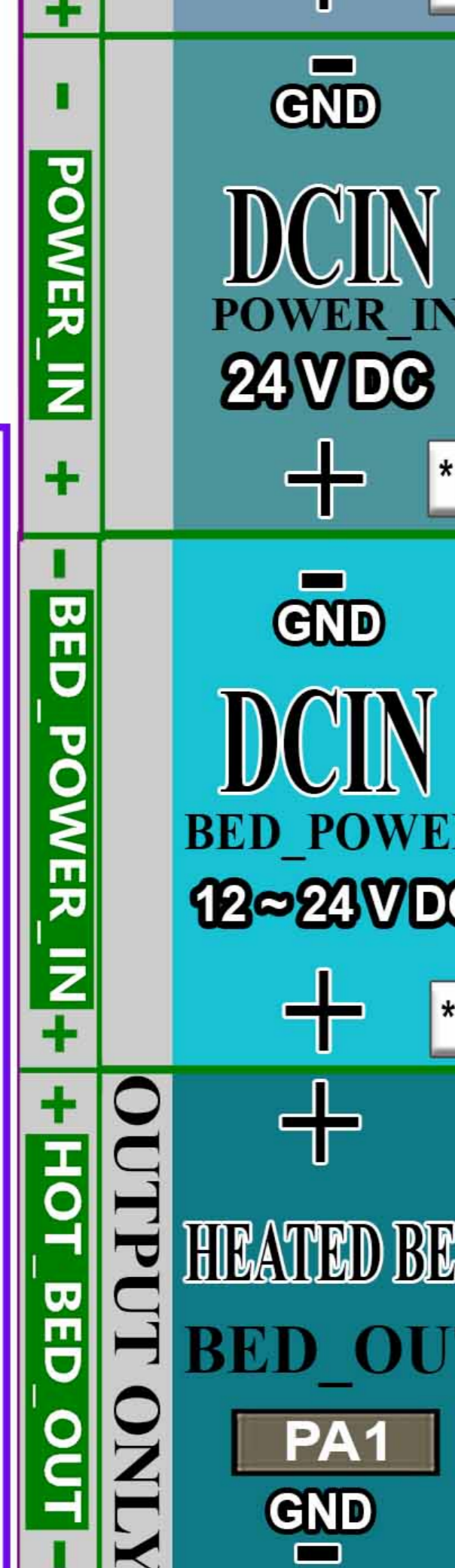
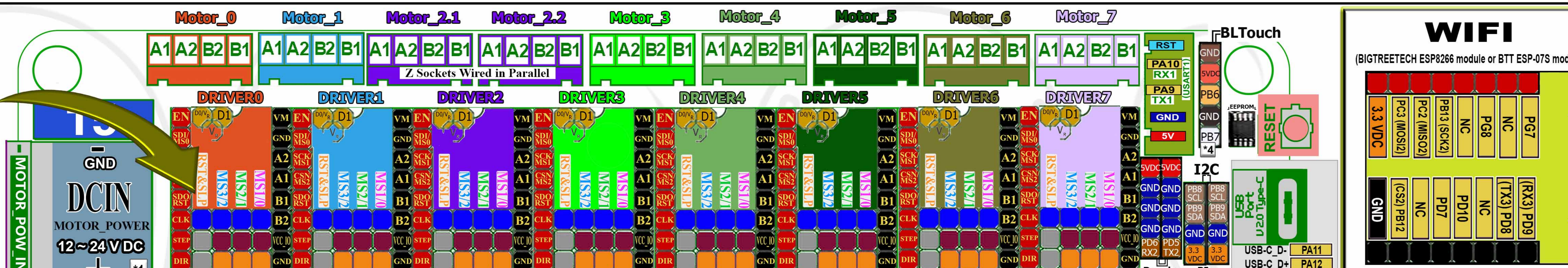
**SPI**

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

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: MOSI, and SCK lines. They have separate CS lines. [https://en.wikipedia.org/wiki/Serial\\_Peripheral\\_Interface](https://en.wikipedia.org/wiki/Serial_Peripheral_Interface)

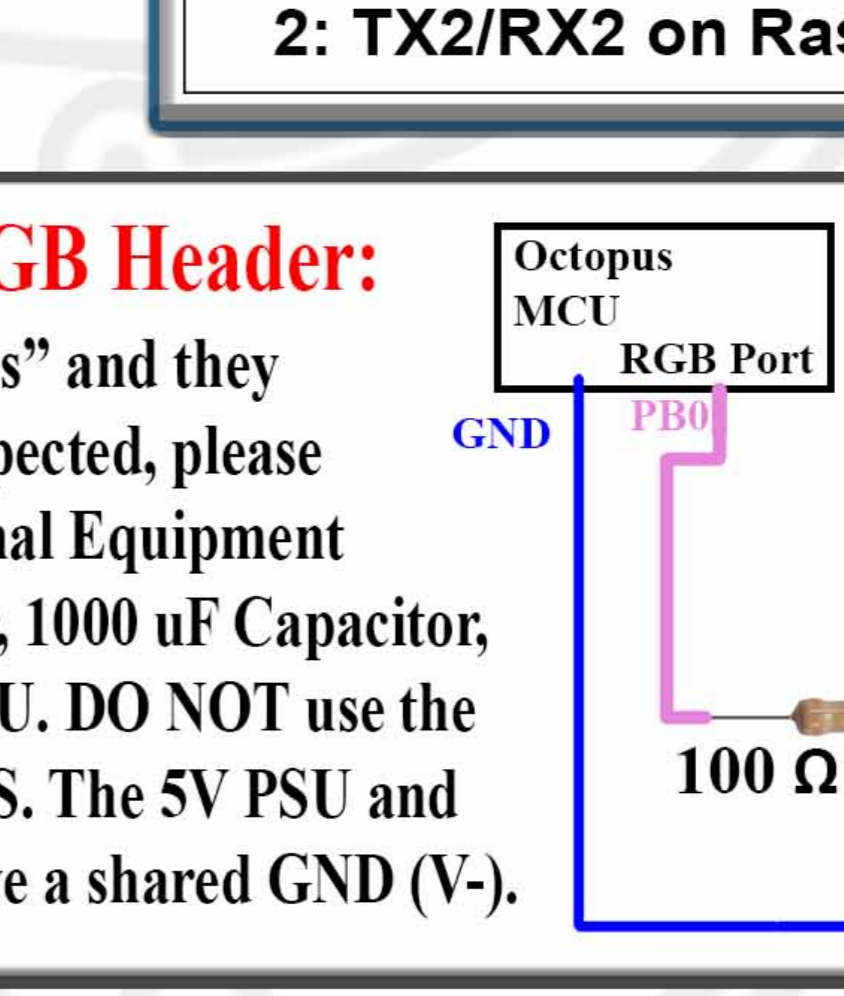
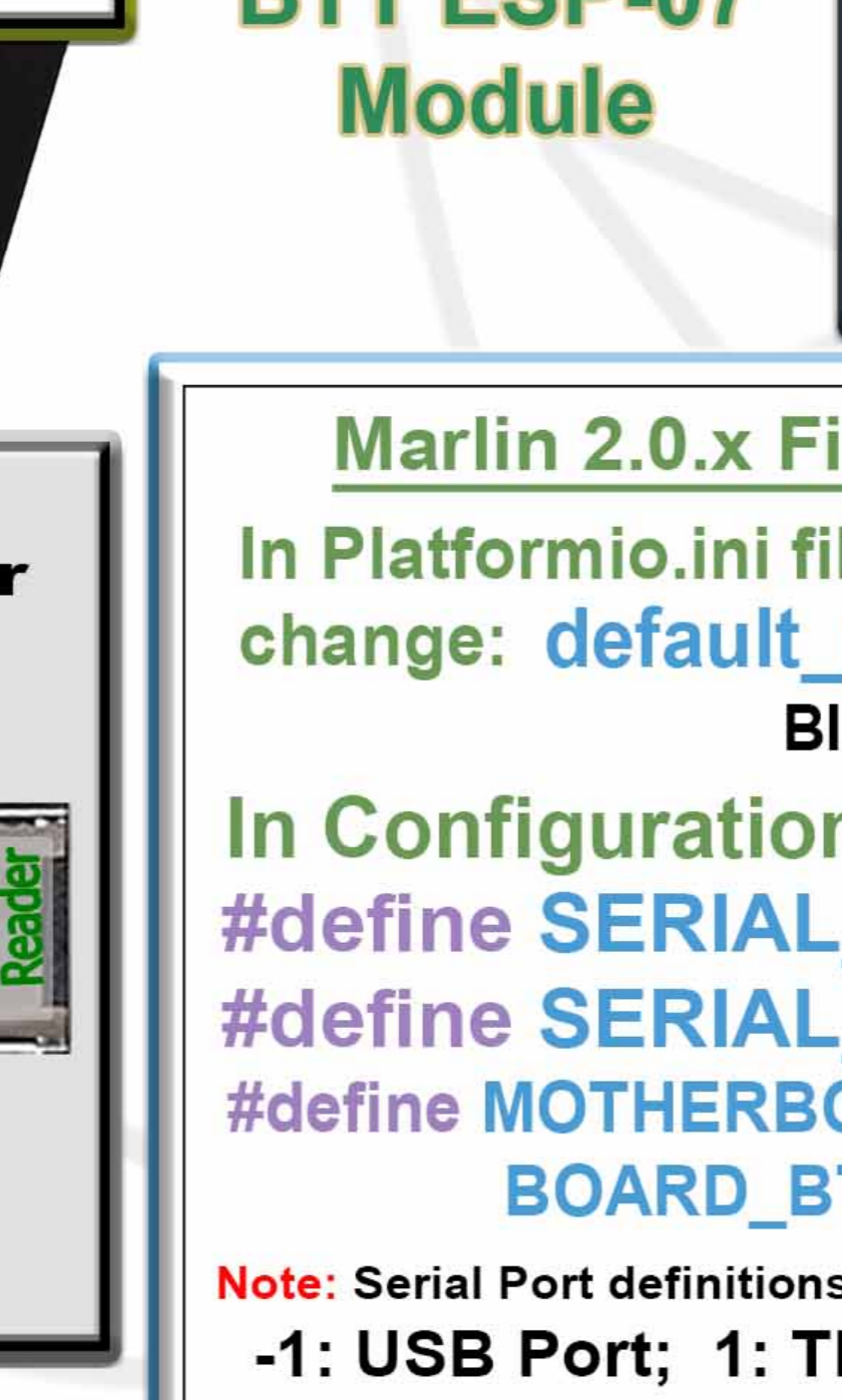
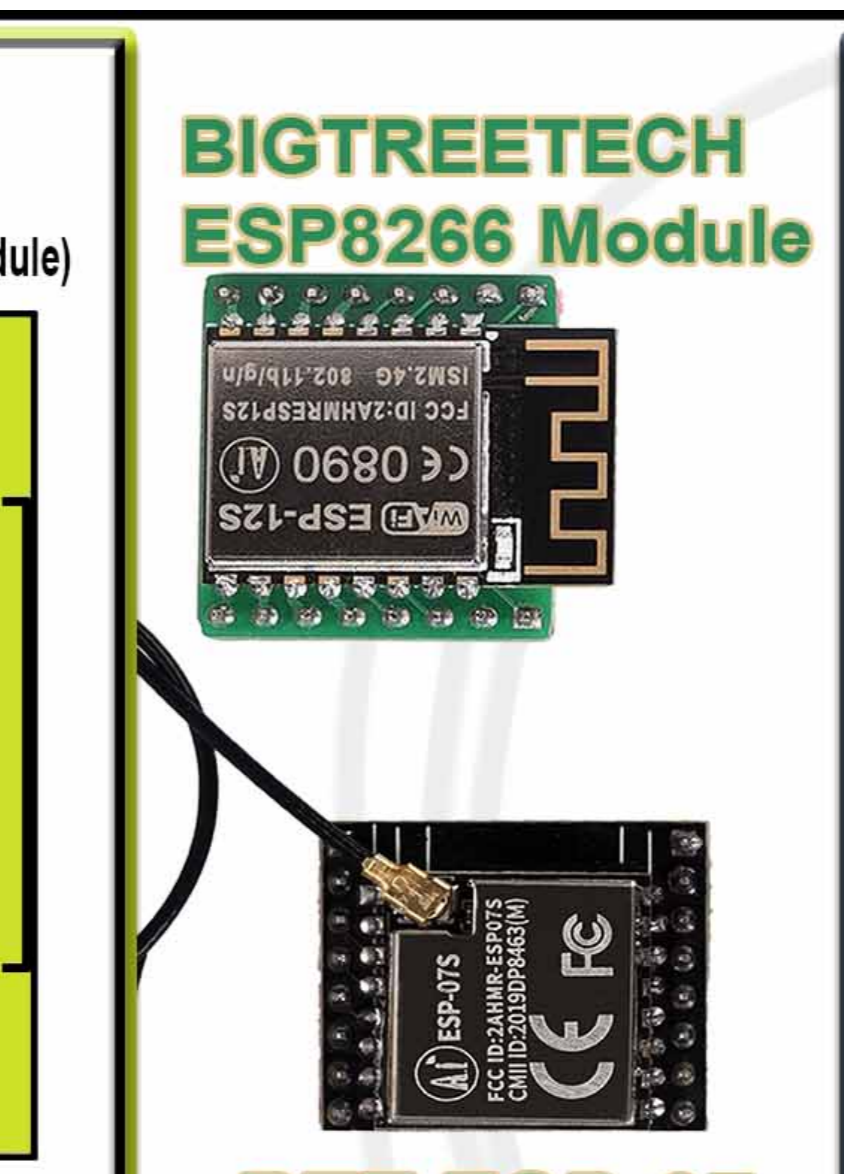
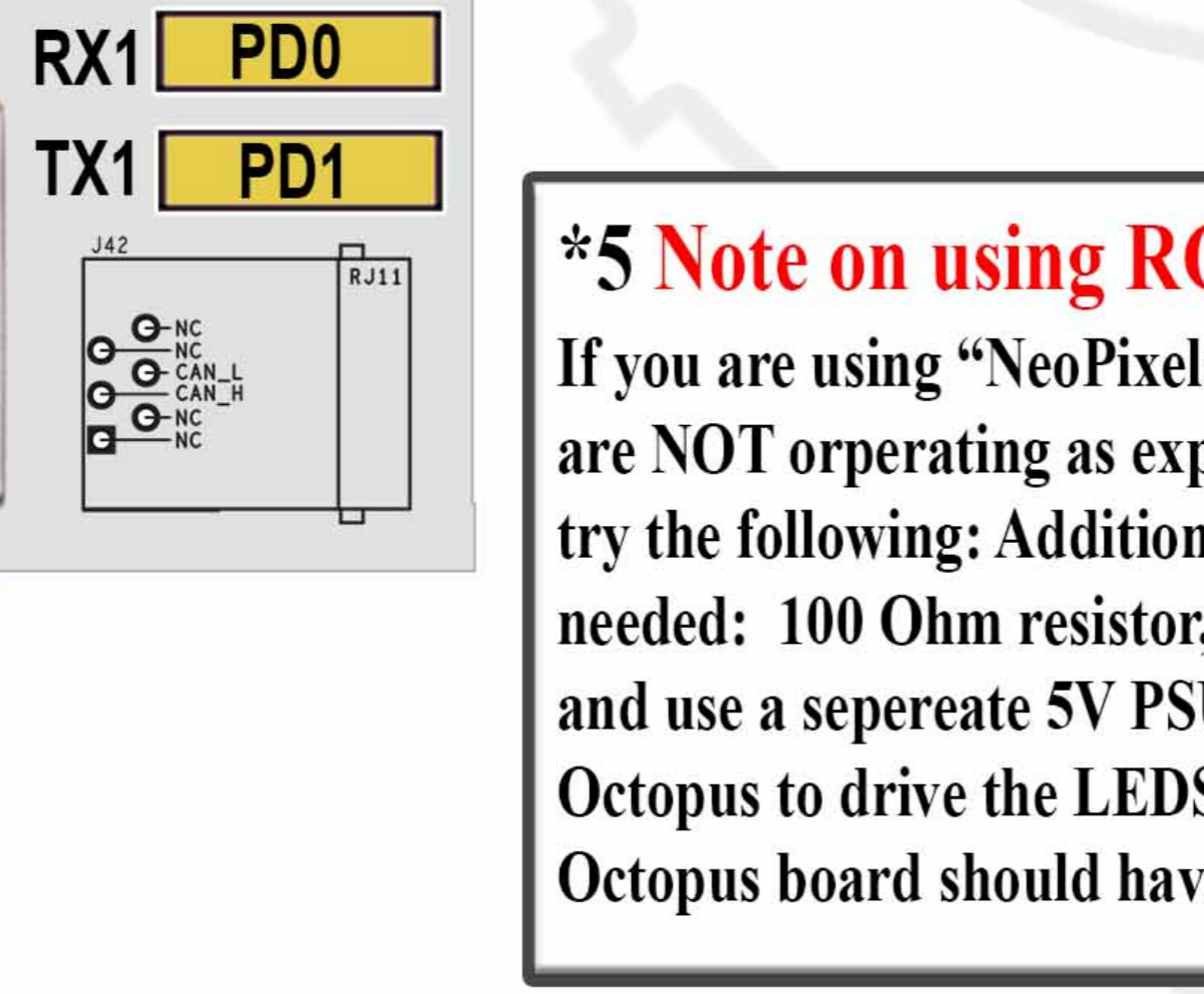
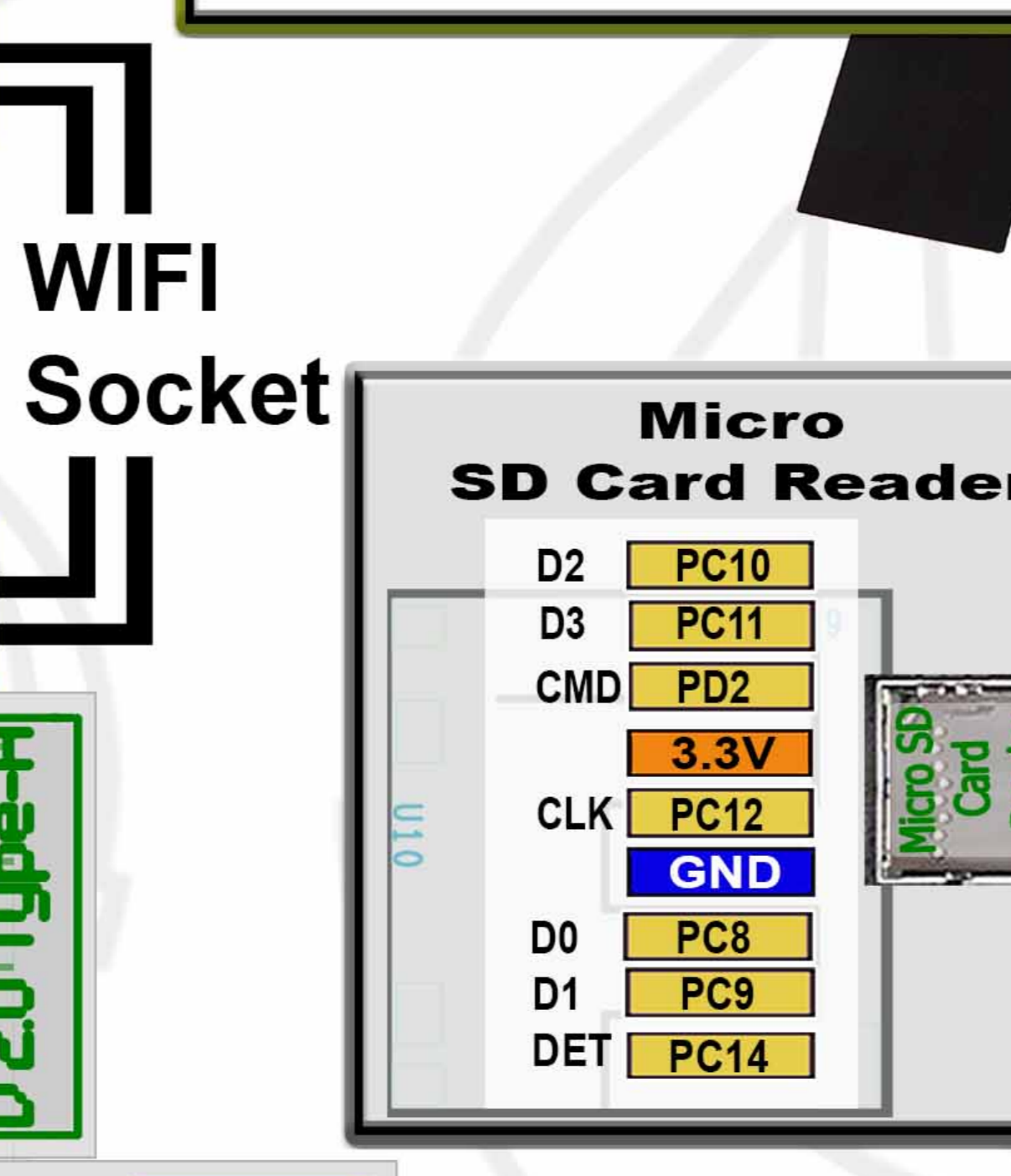
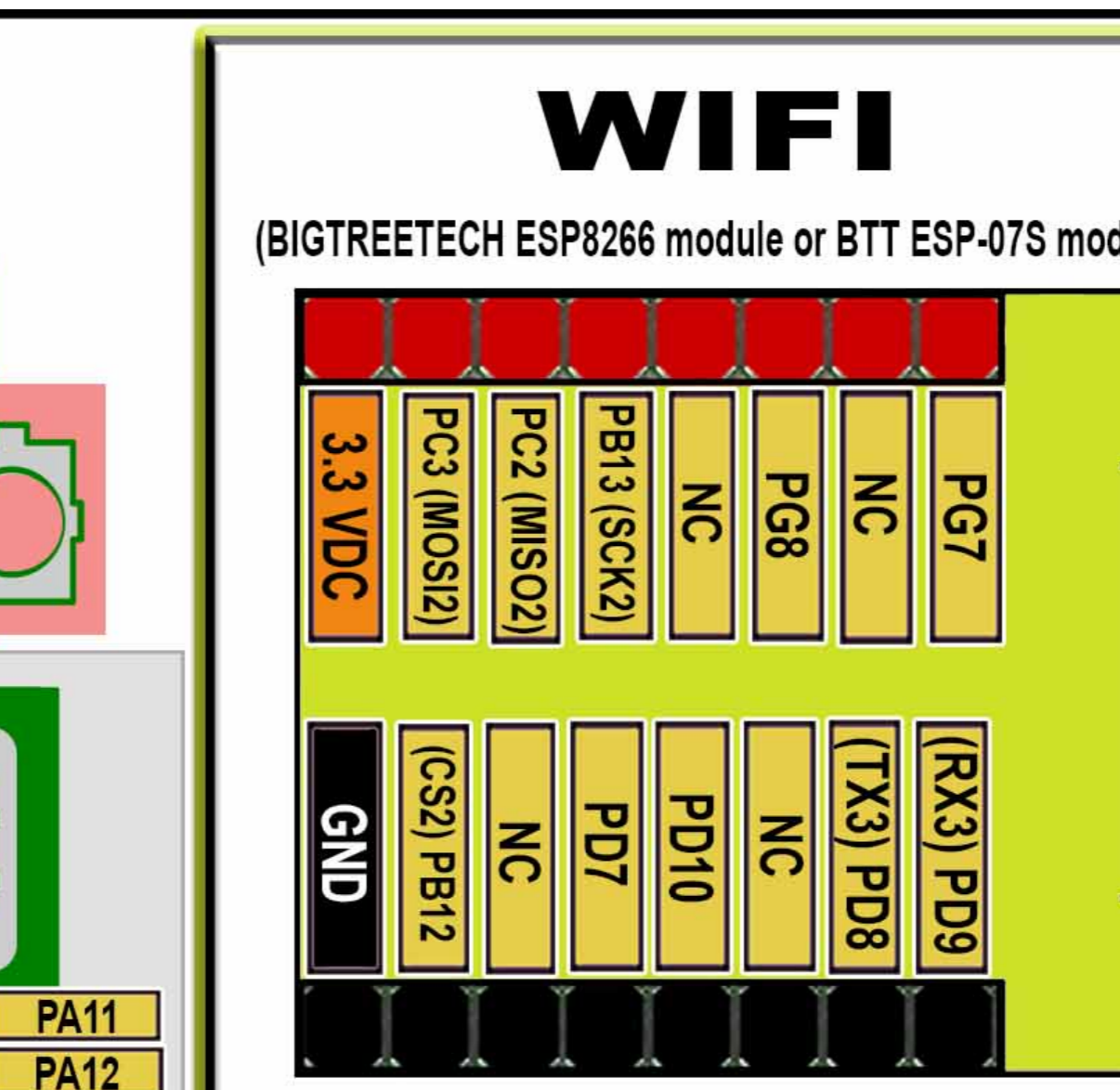
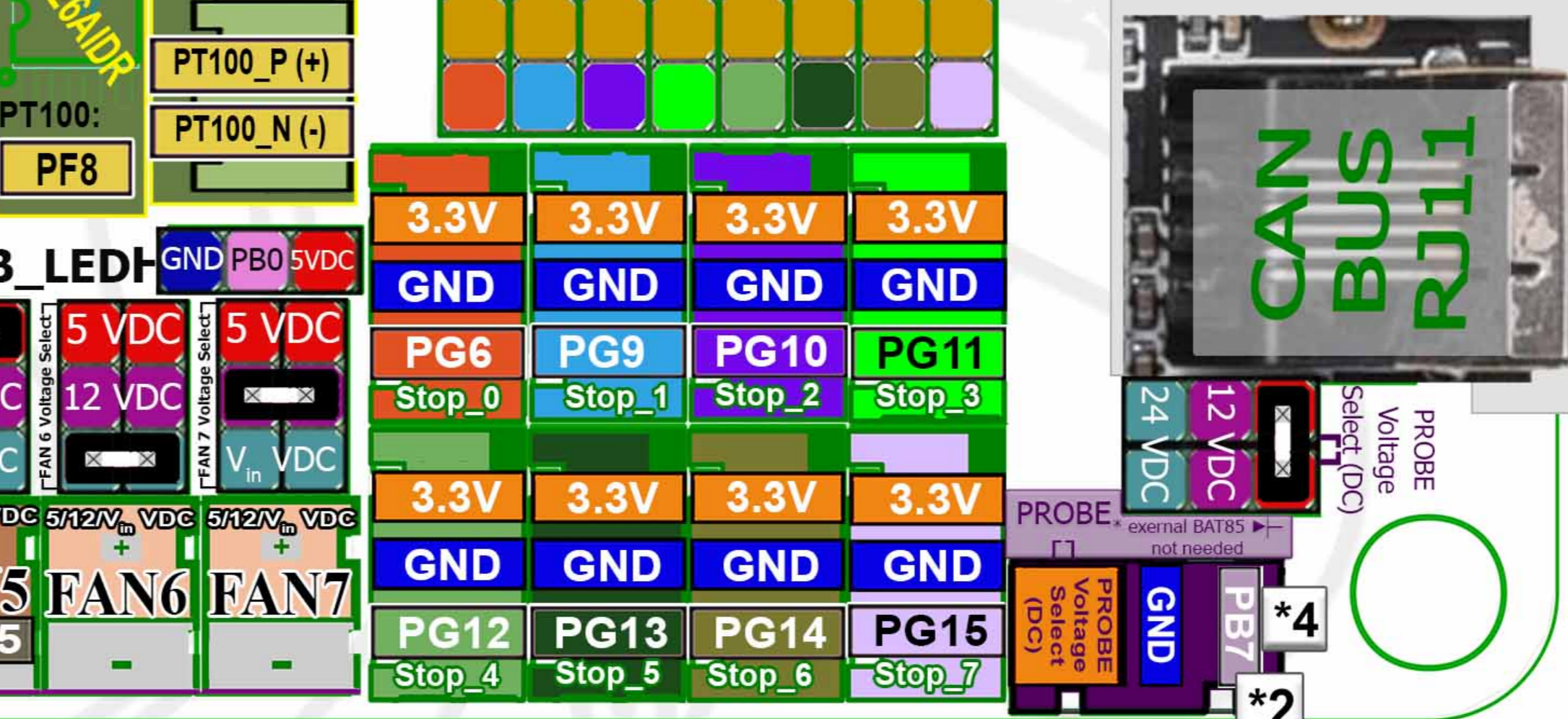
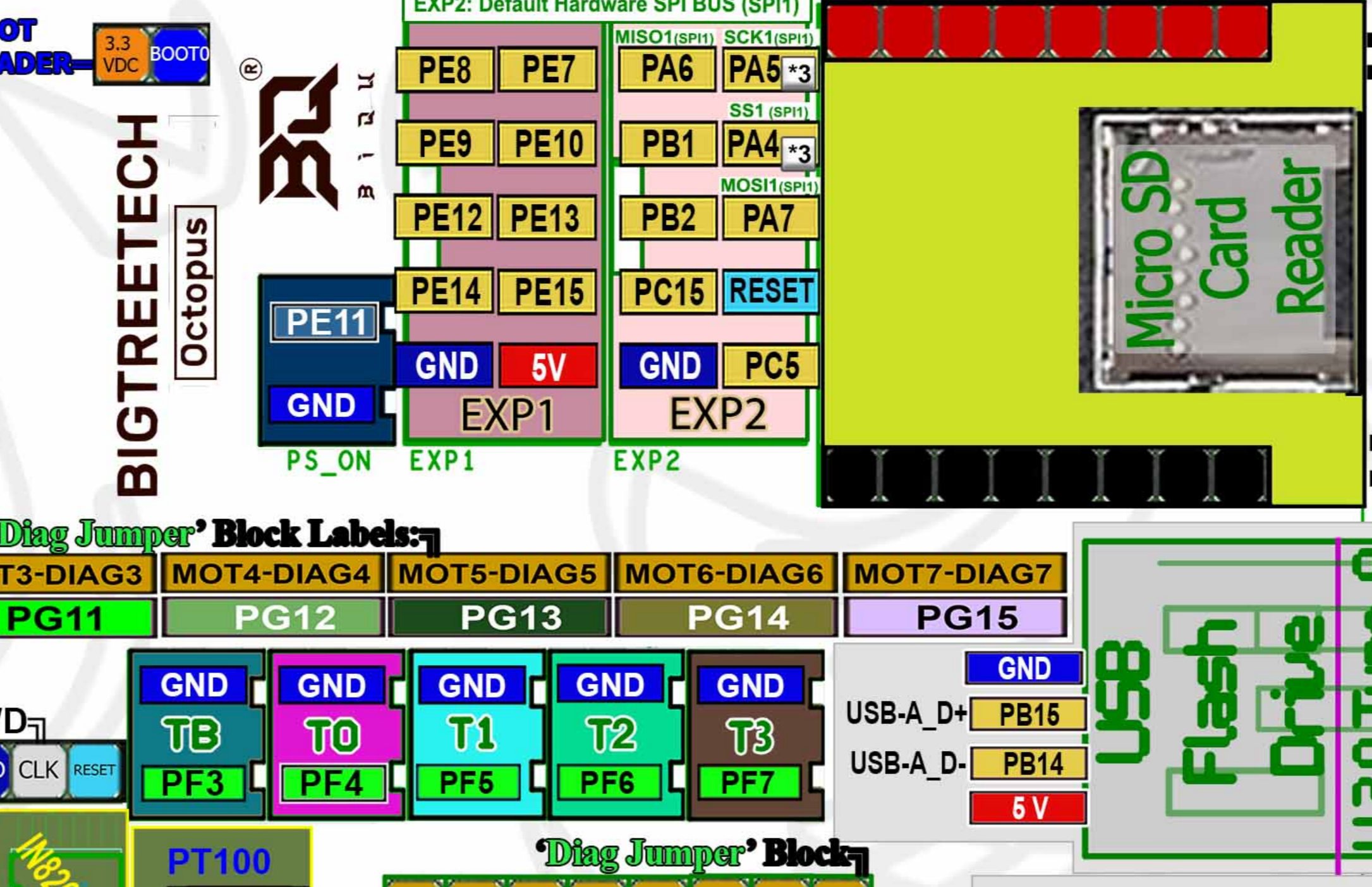
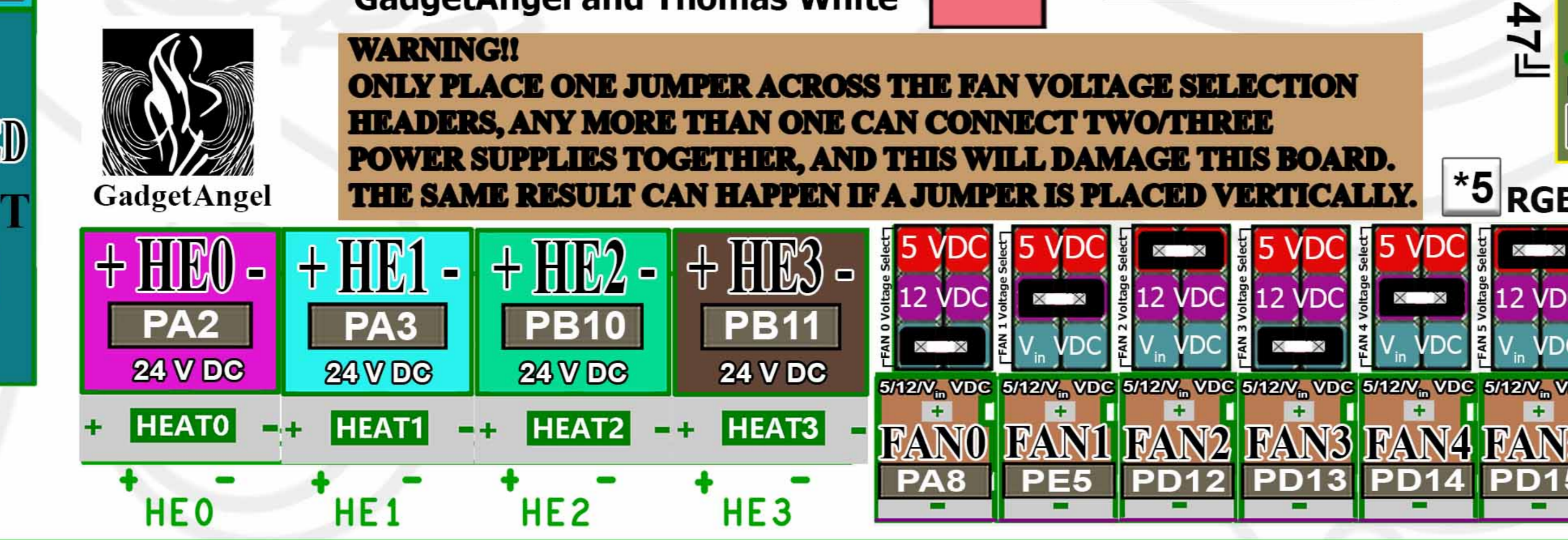
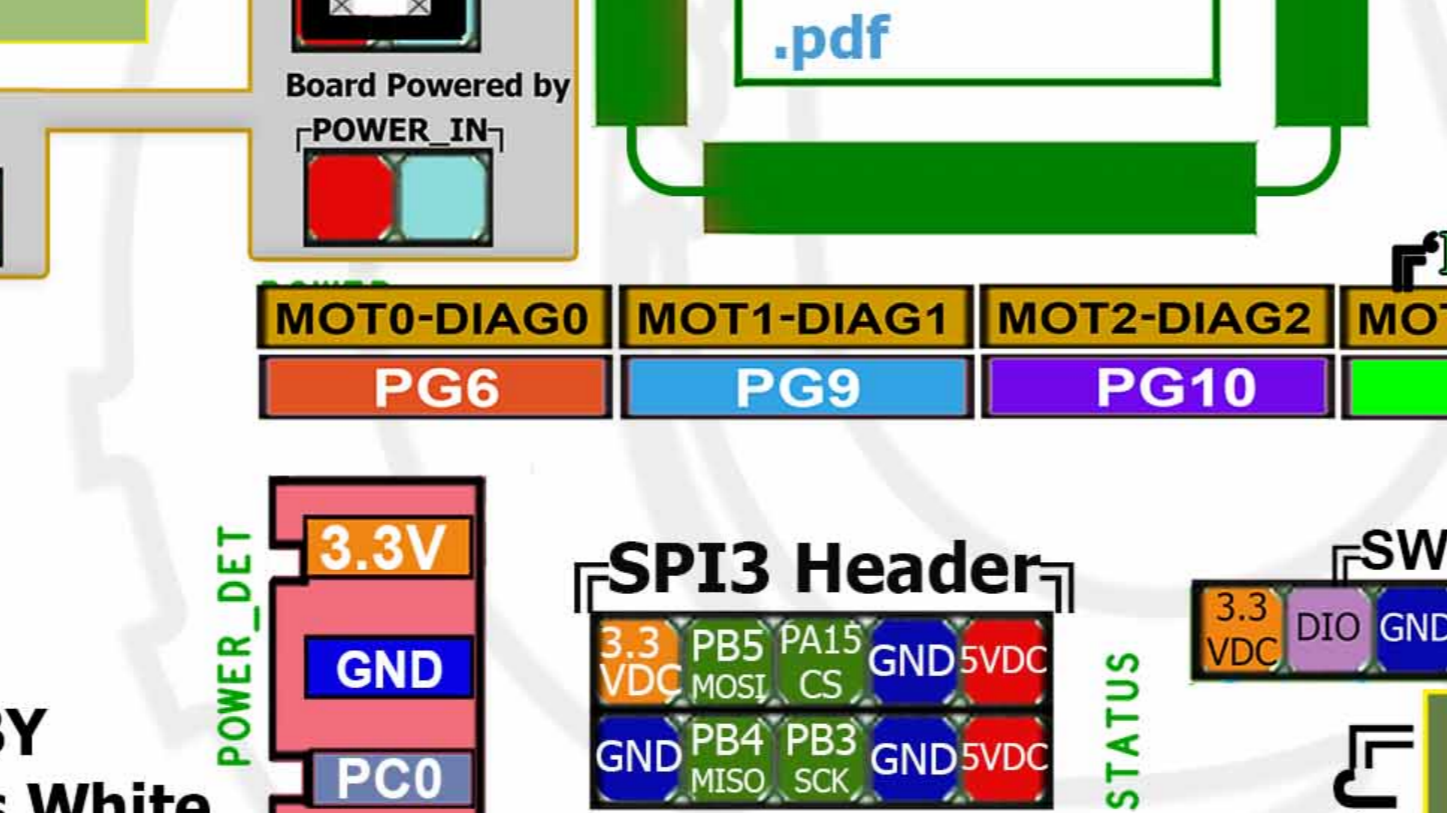


PT100 RTD Tempure sensor: The Octopus board doesn't come U2 INA826AIDR chip; required to use a PT100 with this board. One INA826AIDR chip is needed in the package type SOP-8 soldered inplace near J47.

**Power Selection Jumper**

Board Powered by USB-C Port: 3.3V, GND, PC0

Board Powered by -POWER IN: 5VDC, GND, PC0



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

Klipper Firmware Configuration

```
[*] Enable extra low-level configuration options
Micro-controller Architecture (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)**

M	DIAG PIN	ENDSTOP	Stop
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

DIAG pin to/from Driver: M 0 M 1 M 2 M 3 M 4 M 5 M 6 M 7

Endstops to/from MCU: M 0 M 1 M 2 M 3 M 4 M 5 M 6 M 7

Note 1: Concerning the TMC2209/TMC2226 in UART Mode ONLY: If using limit switches/stop, ensure the DIAG pin is NOT connected to the MCU Endstop (i.e., ensure the 'Diag Jumper' is removed).

Note 2: 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).

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

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

**\*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!