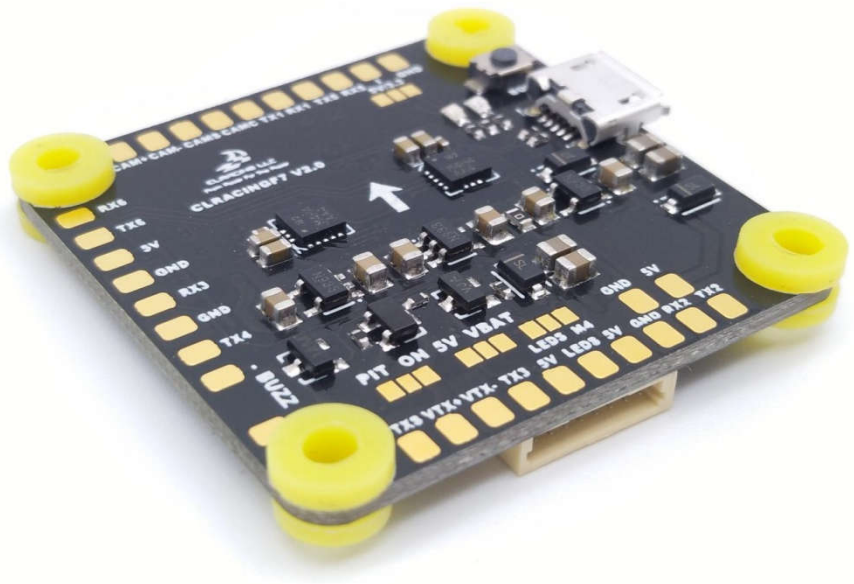
CLRACINGF7 DUAL V2

The Flight Controller for RACERS

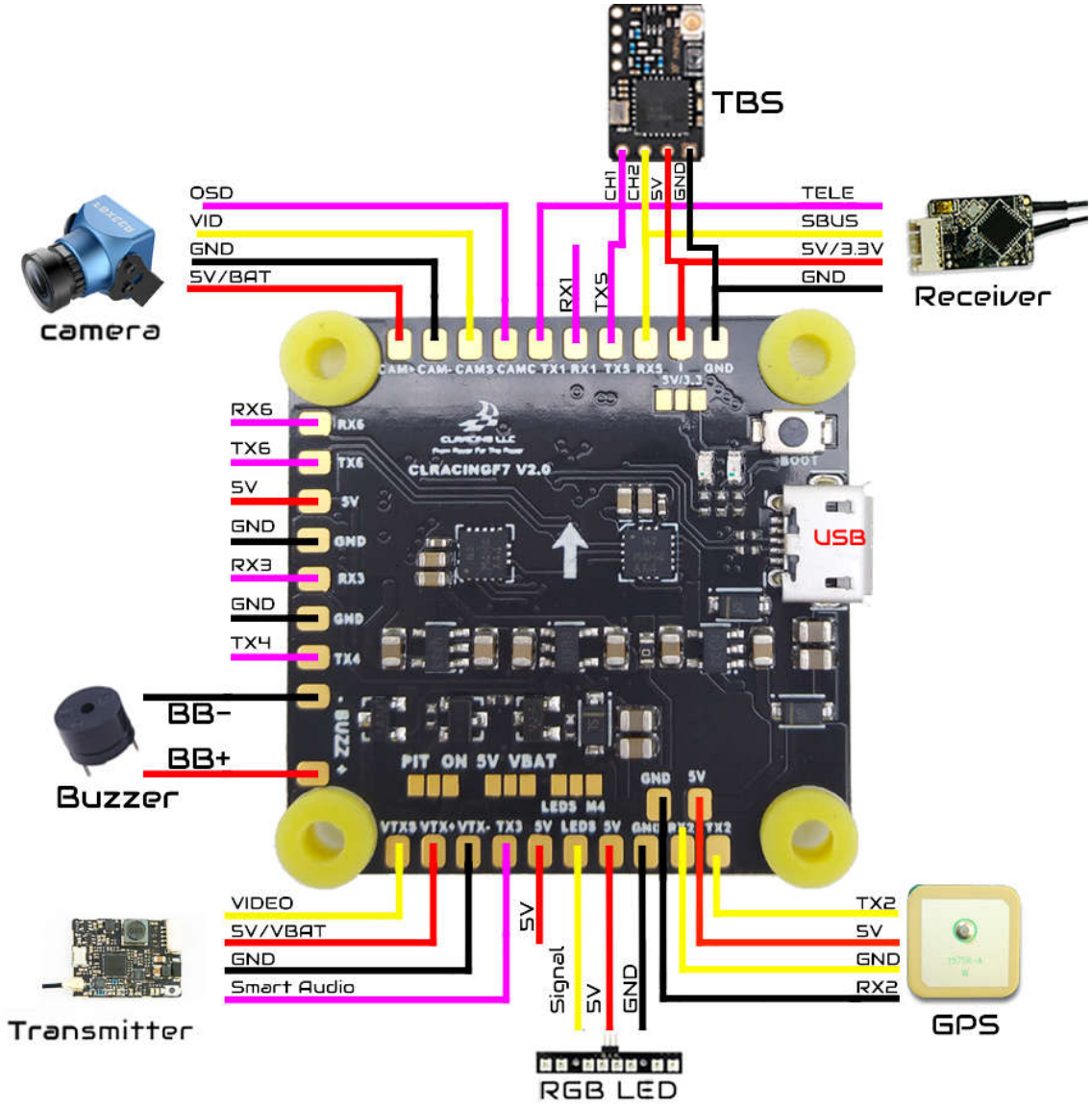
Main Features

1. MCU: STM32F722RET6216MHz
2. DUAL 6-Axis ICM20602Separated Interrupts
3. Build in Beta flight OSD
4. Up to 8S(36V) direct battery power
5. Build in Voltage monitoring resistor
6. Build in 5V/3A BEC and 3.3V/250mA for system
7. Led strip share 5V with 5V/3.0A BEC
8. 5V OR VBAT, camera and VTX POWER VIA Pit Switch
9. 6 Full UARTS: UART1, UART2, UART3, UART4, UART5, UART6
10. Buildin Camera Control pin with necessary resistor and capacitor near camera connection
11. Buzzerpads for external buzzer
12. VBAT Polarity protection
13. Build in 32MB Blackbox flash chip
14. M4 Can be selected either led strip signal or M4 signal for RPM filtering

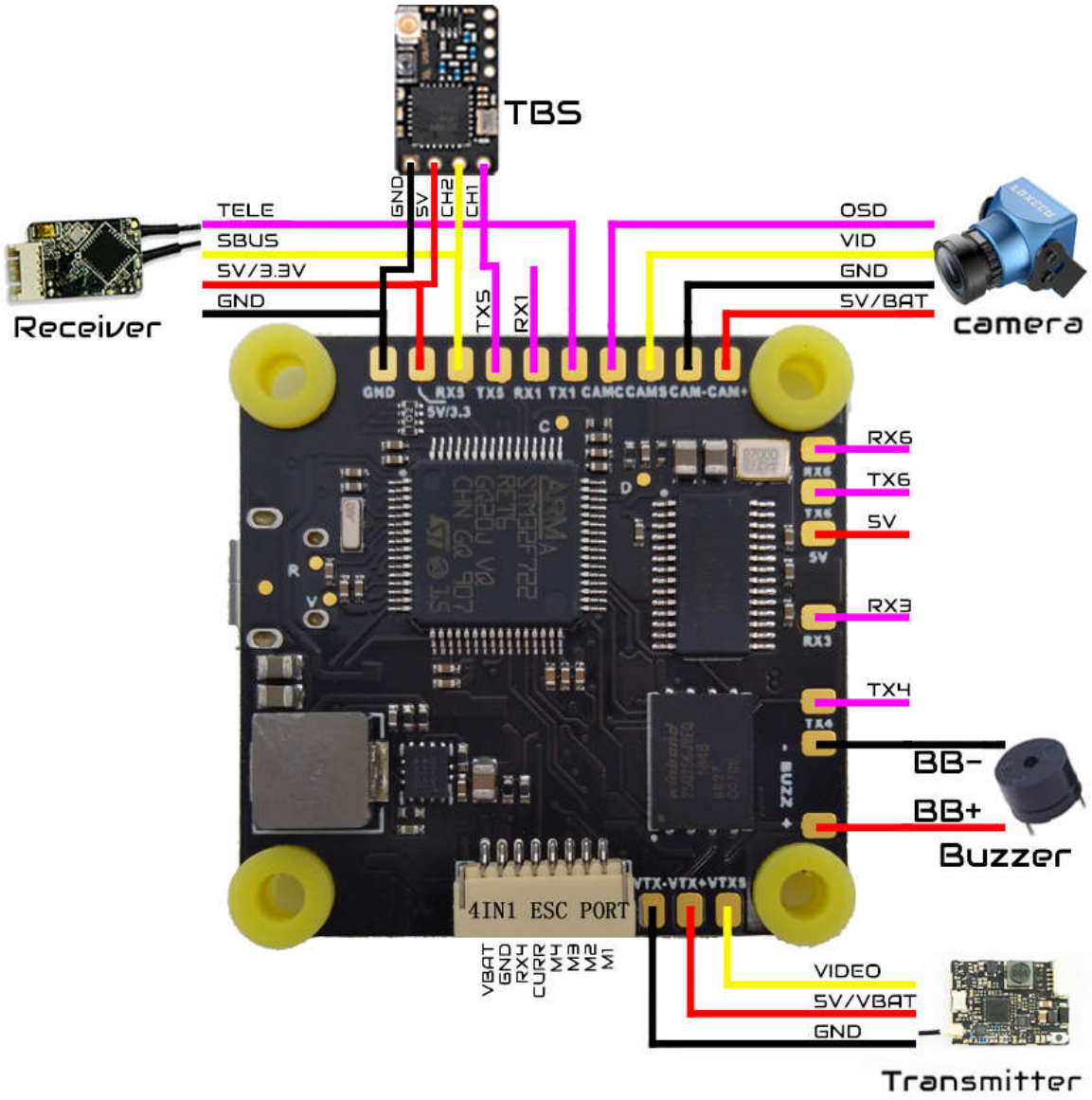


General Overview

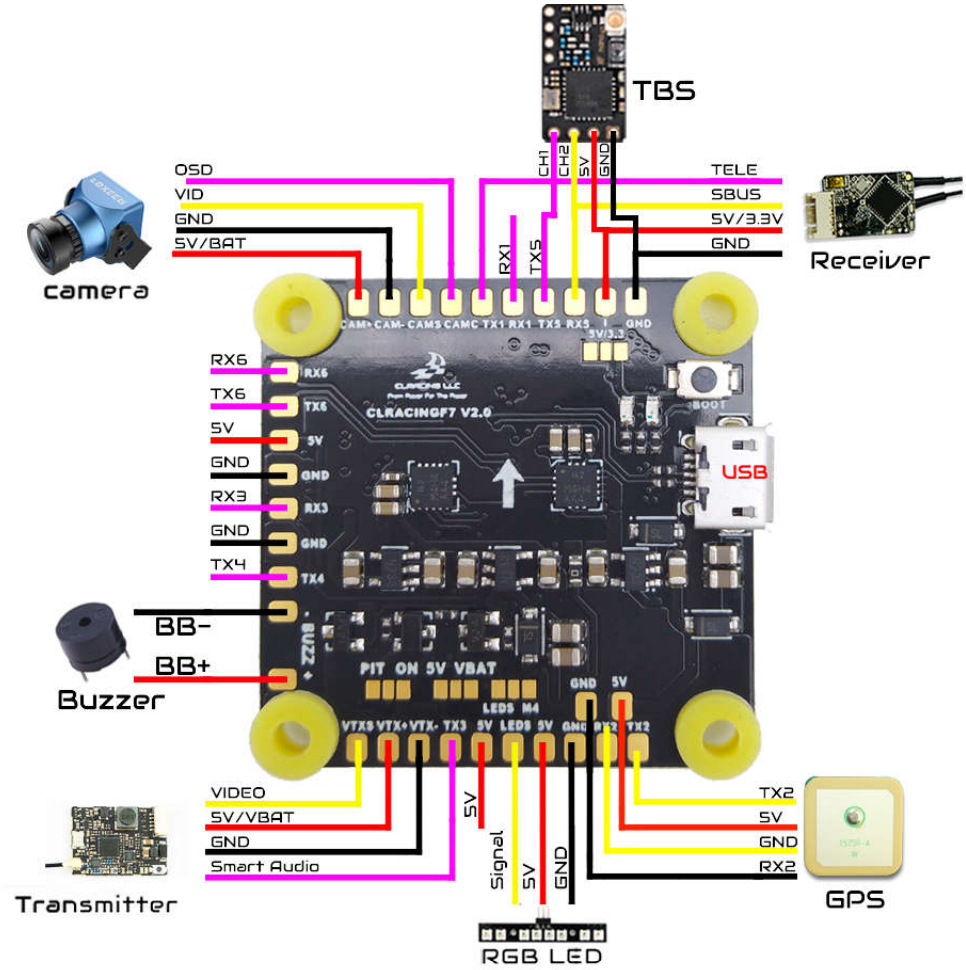
1. FC TOP VIEW

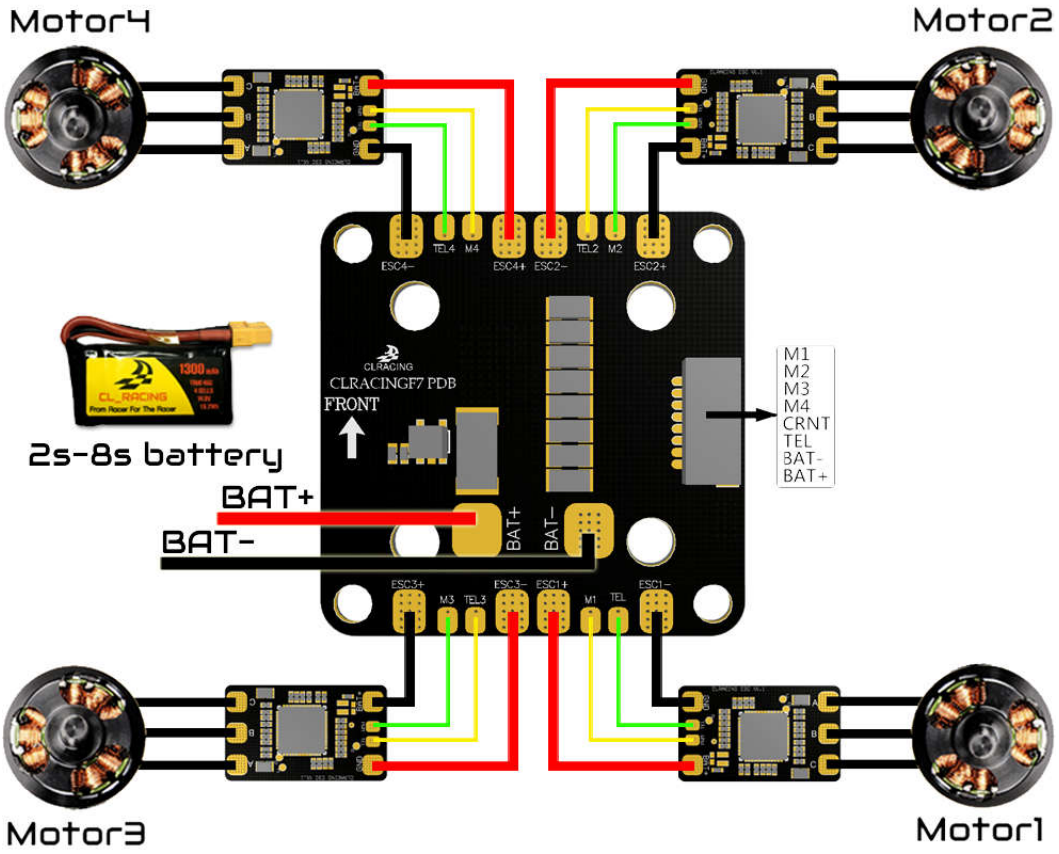


2. FC BOTTOM VIEW

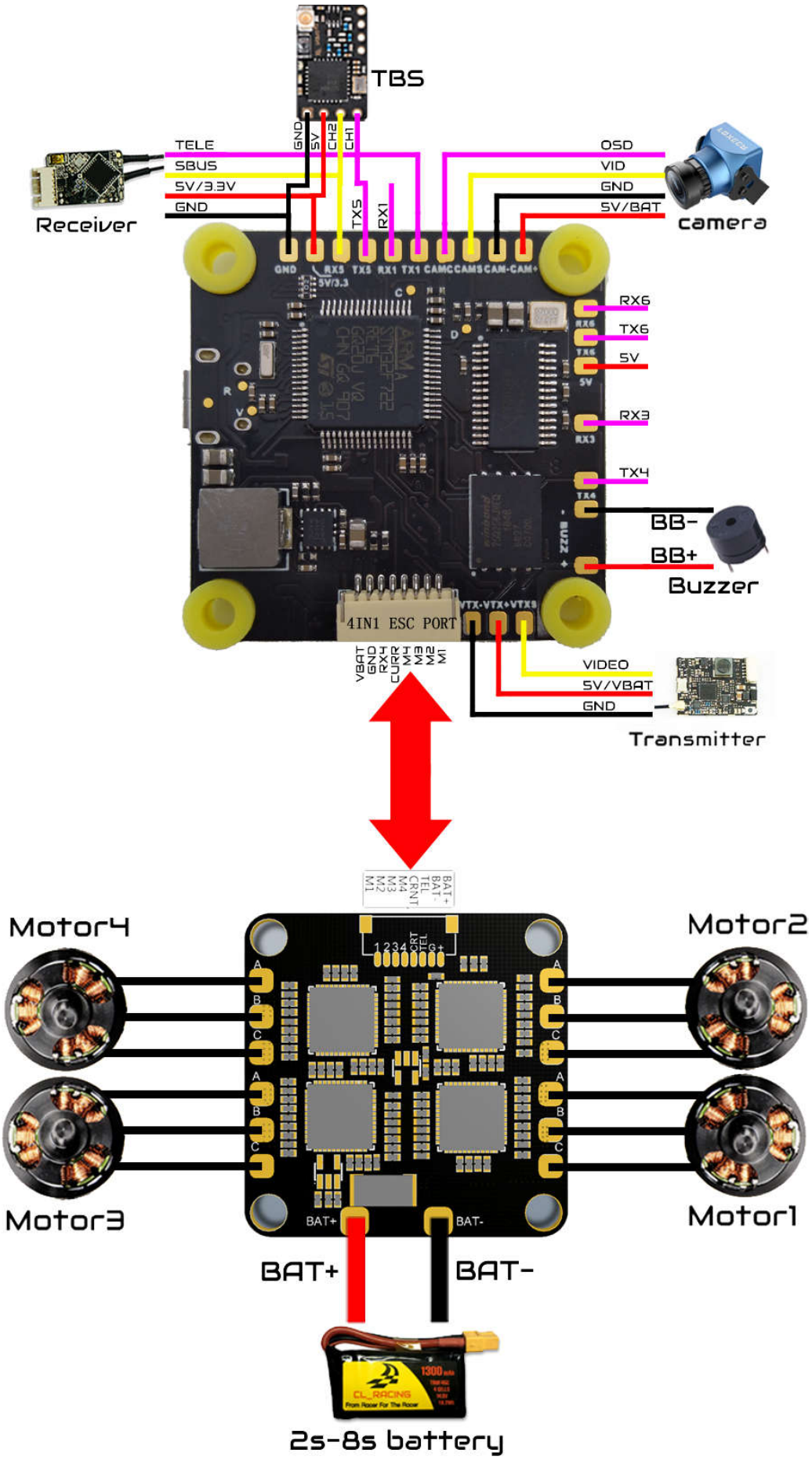


3. FC + 4in1 ESC


TBS
CH1
CH2
5V
GND
OSD
VID
GND
5V/BAT
camera
TELE
SBUS
5V/3.3V
GND
Receiver
RX1
TX5
CAM+ CAM- CAM3 CAMC TX1 RX1 TX5 RX5 5V GND
5V/3.3
RX6
TX6
5V
GND
RX3
GND
TX4
CLRACINGF7 V2.0
BOOT
USB
BB-
BB+
Buzzer
BUZ-
PIT ON 5V VBAT
LEDS M4
GND 5V
VTX5 VTX+ VTX- TX3 5V LED5 5V GND RX2 TX2
VIDEO
5V/VBAT
GND
Smart Audio
Transmitter
5V
Signal
5V
GND
RGB LED
TX2
5V
GND
RX2
GPS


Motor4
Motor2
ESC4-
TEL4
M4
ESC4+
ESC2-
TEL2
M2
ESC2+
CLRACING
CLRACINGF7 PDB
FRONT
M1
M2
M3
M4
CRNT
TEL
BAT-
BAT+
2s-8s battery
BAT+
BAT-
BAT+
BAT-
ESC3+
M3
TEL3
ESC3-
ESC1+
M1
TEL
ESC1-
Motor3
Motor1

4. FC + 4in1 ESC

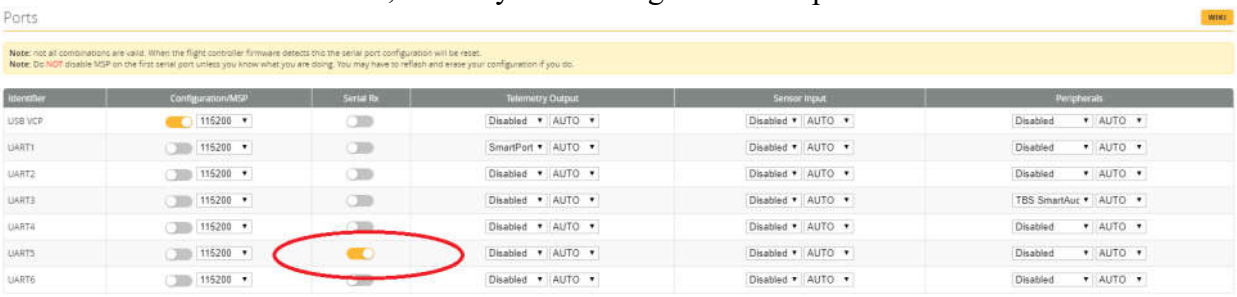

TBS
GND
5V
CH2
CH1
TELE
SBUS
5V/3.3V
GND
Receiver
TX5
RX1
OSD
VID
GND
5V/BAT
camera
GND RX5 TX5 RX1 TX1 CAMC CAMS CAM-CAM+
5V/3.3
RX6
TX6
5V
RX3
TX4
BB-
BB+
Buzzer
4IN1 ESC PORT
VTX-VTX+VTX5
VBAT GND RX4 CURR M4 M3 M2 M1
VIDEO
5V/VBAT
GND
Transmitter
BAT+ BAT- TEL CRNT M4 M3 M2 M1
Motor4
Motor2
1 2 3 4 CRT TEL G+
A B C
BAT+
BAT-
Motor3
Motor1
BAT+
BAT-
1300
CL_RACING
2s-8s battery

Pad Name	function	Pad Name	function
VBAT	POWER VBAT+	TX1	UART1 TX
GND	GROUND VBAT-	RX1	UART1 RX
CAM+	VBAT+ or 5V	TX2	UART2 TX
CAM-	GROUND VBAT-	RX2	UART2 RX
CAMC	CAMERA OSD PIN	TX3	UART3 TX
CAMS	CAMERA SIGNAL	RX3	UART3 RX
VTXS	VTX SIGNAL	TX4	UART4 TX
VTX+	VBAT+ or 5V	RX4	UART4 RX
VTX-	GROUND VBAT-	TX5	UART5 TX
LED_S	RGB LED SIGNAL	RX5	UART5 RX
BB+	BEEPER +	TX6	UART6 TX
BB-	BEEPER -	RX6	UART6 RX
ON	VTX POWER CONSTANT ON	5V	5V OUTPUT FROM FC
PIT	VTX POWER CONTROLABLE FROM RADIO		

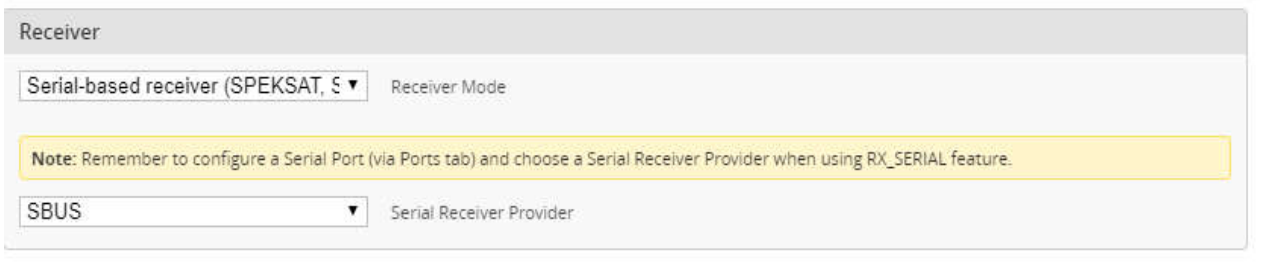
BETAFLIGHT SETUP

1. Sbus

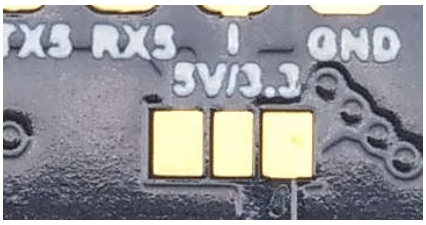
Choose UART 5 AS Serial RX, Solder your sbus signal to RX5 pad



Then in the configuration tab Choose



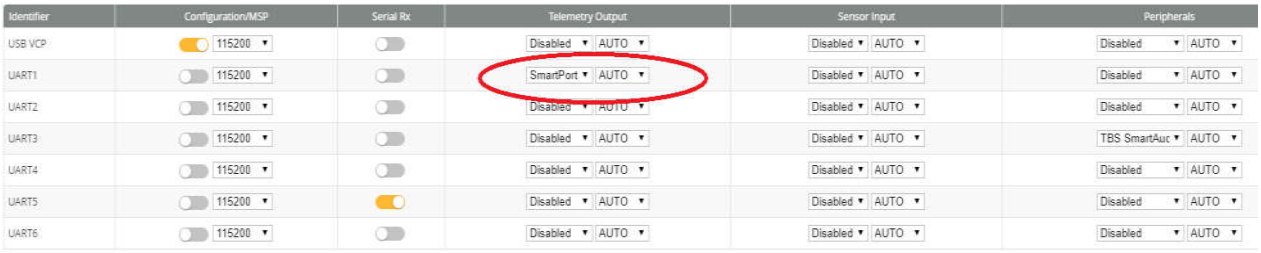
2. RX Voltage selection Jumper



Solder on the left will output 5v , Solder the jumper on the right will output 3.3V

3. Smart port telemetry

Choose UART1 AS Smart port on the telemetry output, then go to CLI
Enter set tlm_halfduplex = OFF， Save



4. Use True Pit mode for Team racing

VBAT and 5V jumper control both VTX power and Camera Power

First Solder Jumper pad on PIT side

Then go to CLI Copy the following command to the CLI
resource PINIO 1 A14
set pinio_box = 39,0,0,0
save
wait for the FC reboot then go to “modetab “set VTX PIT MODE on a AUX switch you prefer

CAUTION: when using PIT mode, FC power up will not power your VTX until you turn on the switch on your radio you assigned to the VTX PIT mode

5. Use LEDS signal for Motor 4 enable RPM filtering

For normal use solder the jumper on the M4 side.

For RPM FILTERING
Solder Jumper pads to the LEDS side, LEDS pad will be output as motor 4.
In the CLI type in

resource MOTOR 4 none
resource LEDS_STRIP 1 none
resource motor 8 none
resource MOTOR 4 B01
save

now you can go ahead use the RPM filtering setting from BF wiki to enable RPM filtering feature