



Clracing F7 MPU V2 Flight Controller for Racers Instruction Manual

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CLRACINGF7 MPU V2

The Flight Controller for RACERS

Main Features

1. MCU: STM32F722RET6216MHz
2. 6-Axis MPU6000 Separated 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

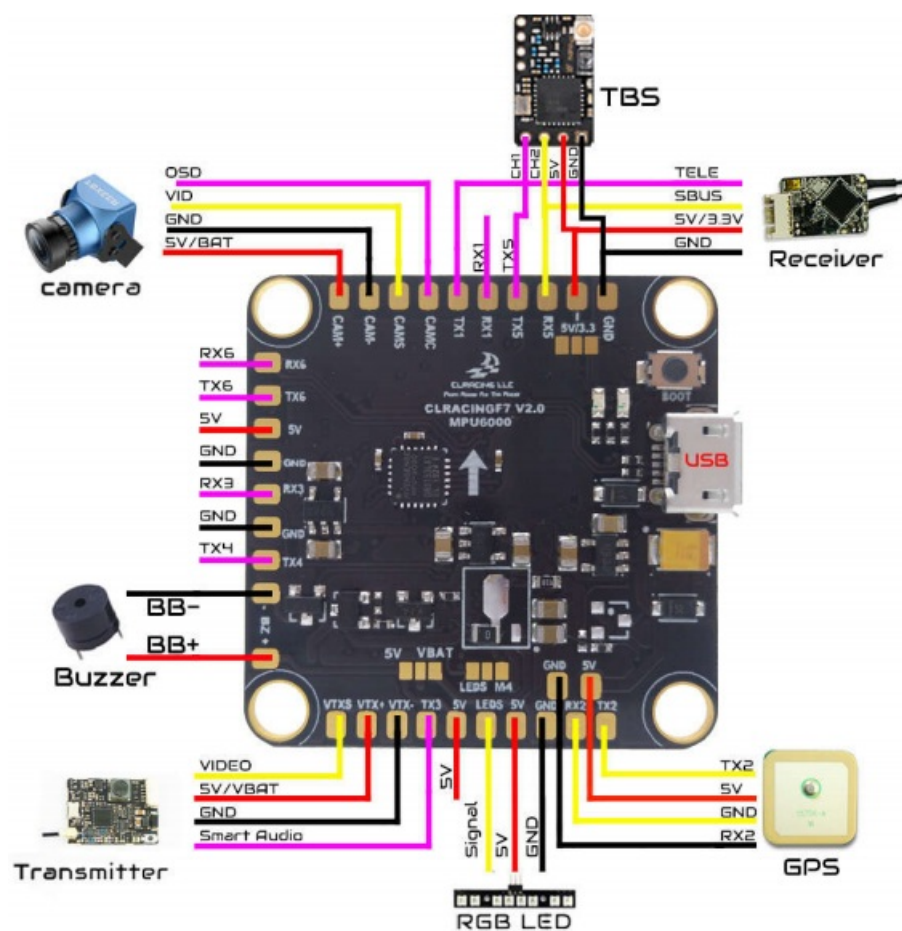
13. Build in 32MB Blackbox flash chip

14. M4 Can be selected either led strip signal or M4 signal for RPM filtering

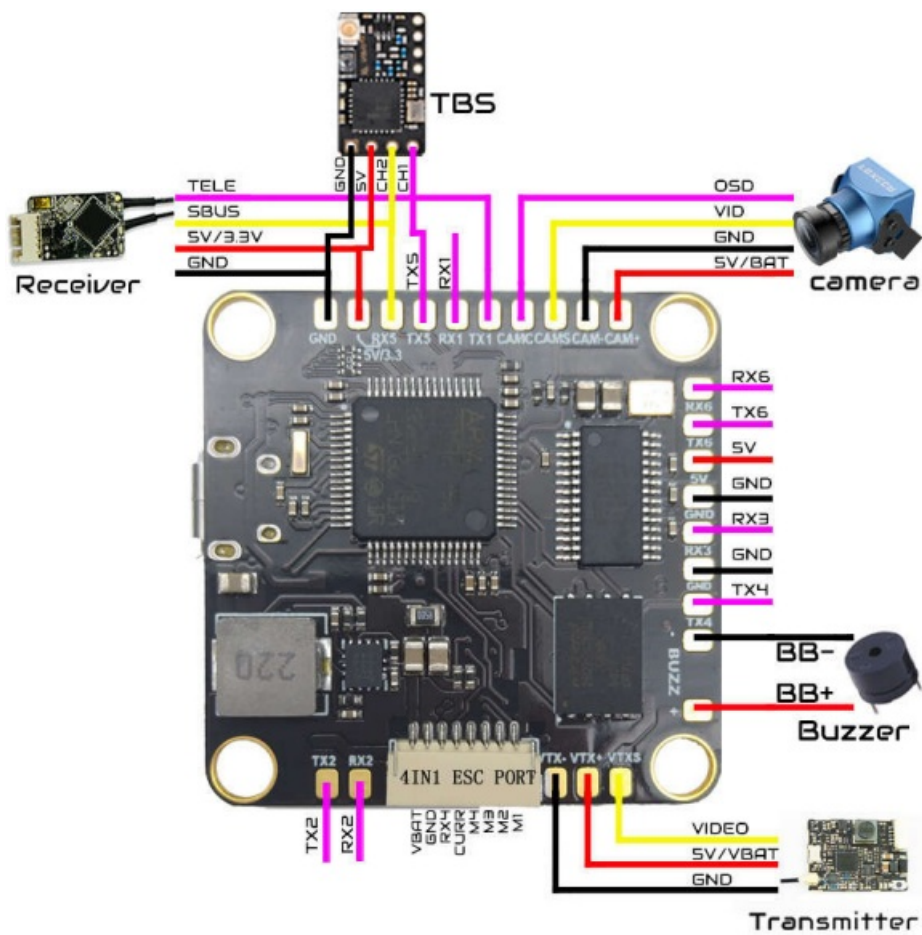


General Overview

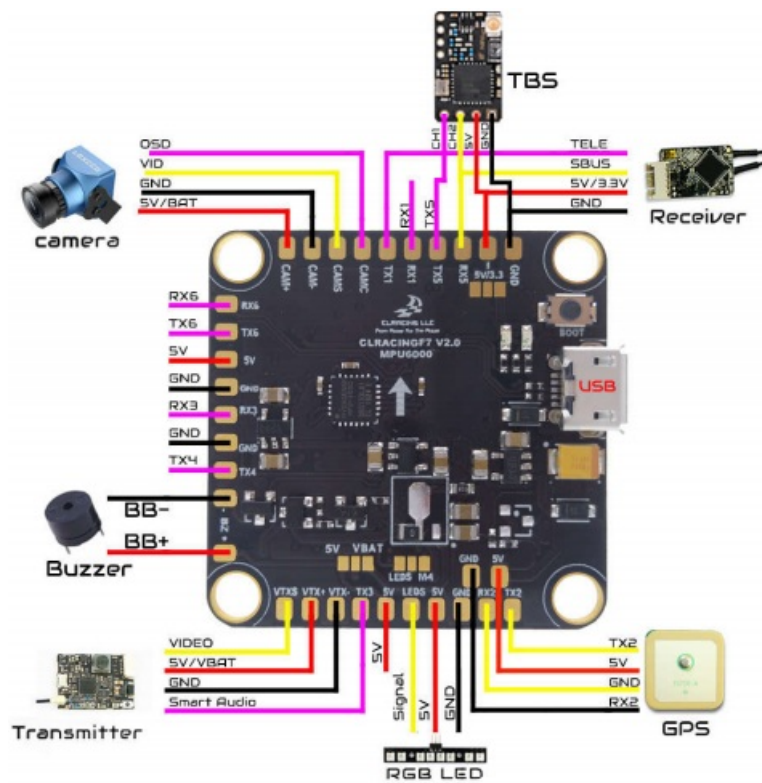
1. FC TOP VIEW

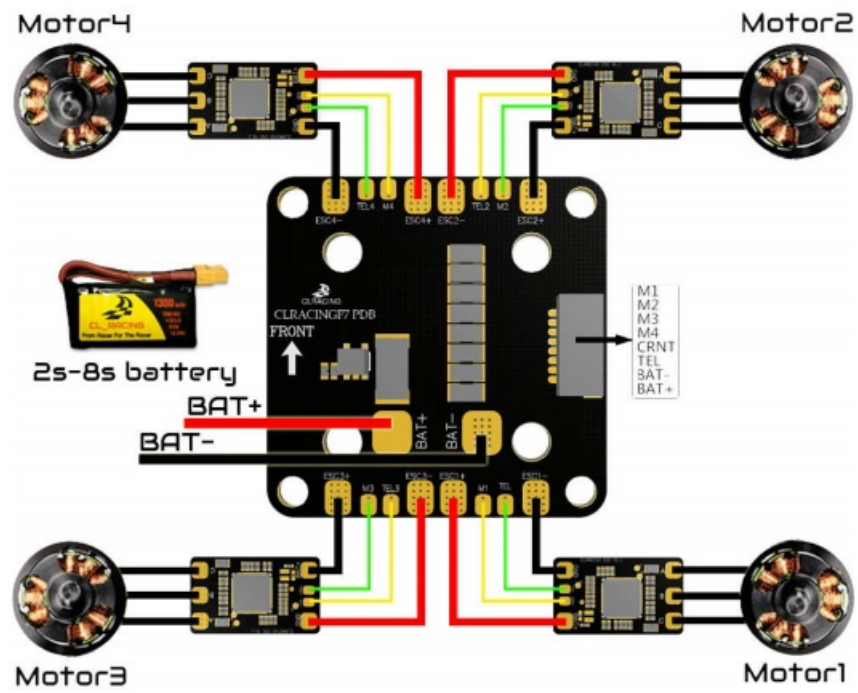


2. FC BOTTOM VIEW

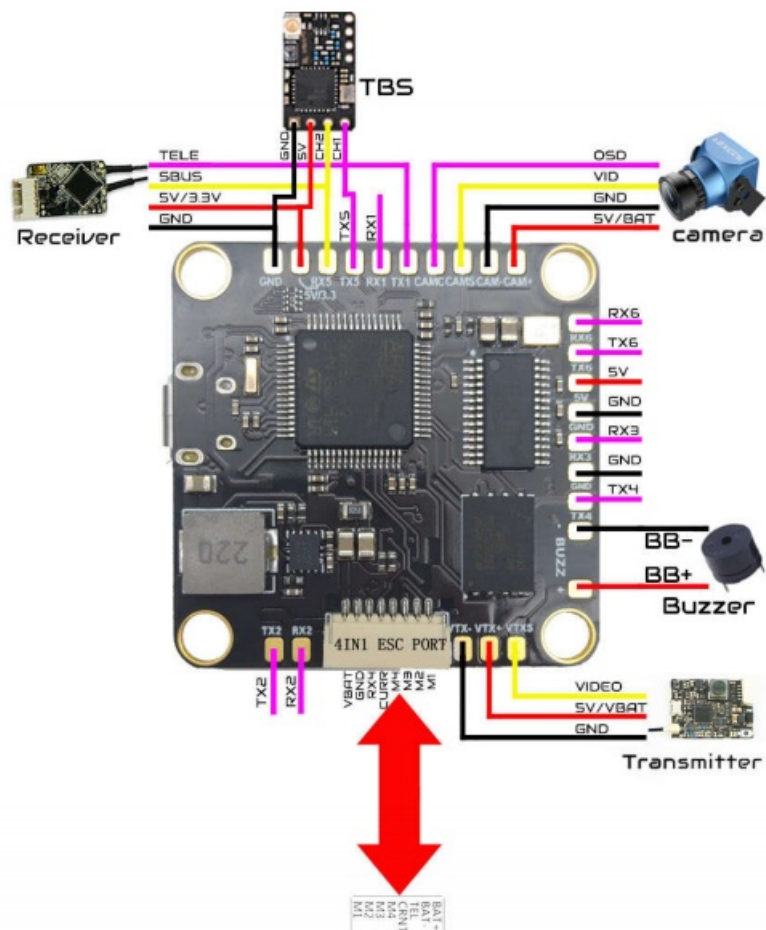


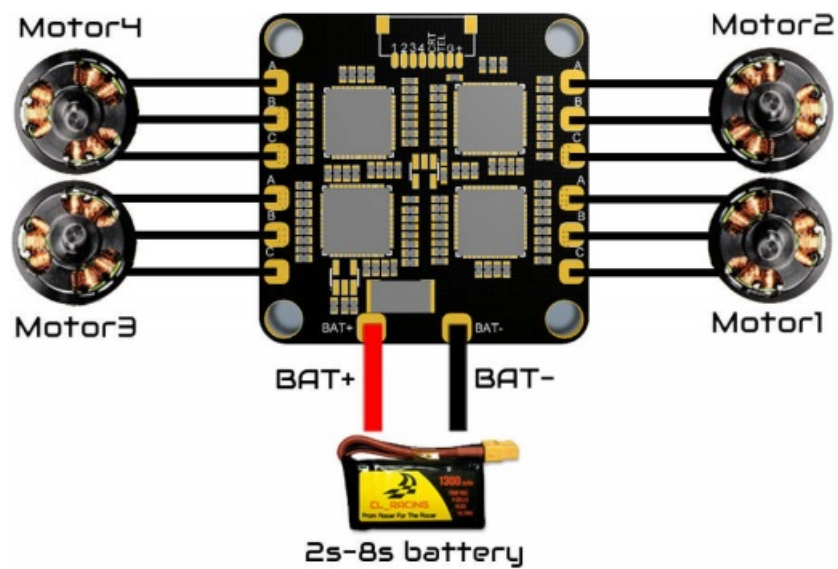
3. FC + 4in1 ESC





4. FC + 4in1 ESC





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

Ports Save

Note: Not all combinations are valid. When the right controller firmware details fit to the serial port configuration can be used.
Note: Do NOT enable VSP on the first serial port unless you know what you are doing. You may have to refresh and save your configuration if you do.

Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART1	115200	<input type="checkbox"/>	SmartPort AUTO	Disabled AUTO	Disabled AUTO
UART2	115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART3	115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	TBS SmartPort AUTO
UART4	115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART5	115200	<input checked="" type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART6	115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO

Then in the configuration tab Choose

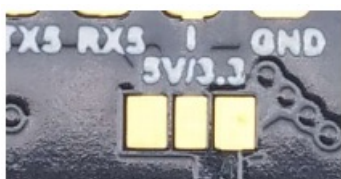
Receiver

Serial-based receiver (SPEKSAT, S) Receiver Mode

Note: Remember to configure a Serial Port (via Ports tab) and choose a Serial Receiver Provider when using RX_SERIAL feature.

SBUS Serial Receiver Provider

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

Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART1	115200	<input type="checkbox"/>	SmartPort AUTO	Disabled AUTO	Disabled AUTO
UART2	115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART3	115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	TBS SmartPort AUTO
UART4	115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART5	115200	<input checked="" type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART6	115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO

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

PREARM Add Range

VTX PIT MODE AUX 3 Min: 1700 Max: 2100 1000 1200 1400 1600 1800 2000 2100

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, Motor 4 signal in the 4 in 1 socket will connect to LED_S internally for rpm-filtering 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

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