# **K**appy**m**odel

# Notes:

**1.**Please use Betaflight configurator 10.4.0 or 10.4.1 version to setting the Mobula 7, the pre-install firmware is not compatible with new 10.5.1 configurator. If want to use 10.5.1 configurator, please update Betaflight firmware to V4.0.0 or latest

# Package includes

Item Name	<b>Basic version</b>	Standard version
75mm Brushless Bwhoop75 Frame	1	1
Crazybee F4 PRO Frsky receiver	1	1
SE0802 KV16000 Motor	4	4
40mm propeller(4cw+4ccw)	1	1
AIO Camera & VTX	1	1
Buzzer	1	1
3.8v 250mah 30C/60C battery	4	4
USB Lipo/LIHV Charger	1	0
1S06 6 way Lipo/LIHV charger	0	1
Propeller disassemble tool	1	1
Screwdriver	1	1

# Flight controller connection diagram



# **Binding procedure**

1.Connect the Mobula7 to computer, then running the Betaflight configurator, move to CLID Command, type "bind\_rx". The 2pcs Red LED and 2pcs white LED will getting to be solid, this indicate the Receiver is in binding mode. If you flash Mobula7 firmware to 4.0.x, the bind code is "bind\_rx\_spi" or you can still press the bind button after the Mobula7 power up to getting into bind mode

Entering CLI Mode, type 'exit' to return, or 'help'
Bilifig autocapter Orde Beel Hand av Bind code for default factory firmware
\$M>De°DDD!DDDDDDDDDDDDD\$M> nDDDDDDDDe Entering CLI Mode, type 'exit' to return, or 'help'
<sup># bind</sup> rx.spi Binding Bind code for BF V4. 0. 0/V4. 0. 1/V4. 0. 2

**2.**Turn on your Frsky Taranis transmitter, and move to BIND OPTION from SETUP MENU, Choose receiver mode to D8 (Default factory mode), If you want to usde D16 mode, please change SPI Bus Receiver Provider to Frsky\_X(Not suggest)



**3.**ENT [Bind] to binding with the Mobula 7, the LED Combo(2 red LED and 2 white led) will blinking slowly on the flight controller, this indicate binding successfully, and then exist binding mode of your Frsky transmitter, the LED Combo(2 red led and 2 white LED) will getting to be solid again, this indicate working normal.

# **Receiver configuration**

Please set Receiver mode to be SPI RX Support from the Configuration tab of the Betaflight Configurator, then select FRSKY\_X Provider for FRSKY D16 MODE or Select FRSKY\_D Provider for FRSKY D8 MODE, don't enable Serial RX since the CRAZYBEE Flight controller is integrated SPI BUS Receiver

Note: not al Note: Do N	Il combinations are valid. Wi OT disable MSP on the first s	nen the flight co serial port unles	ntroller firmware detects this the s you know what you are doing. Y	serial port configuration will be rese ou may have to reflash and erase yo	it. our configuration if you do.
Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	115200 🔻		Disabled • AUTO •	Disabled • AUTO •	Disabled • AUTO •
UART1	115200 •		Disabled • AUTO •	Disabled • AUTO •	TBS SmartAud • AUTO •
UART2	115200 •		Disabled • AUTO •	Disabled • AUTO •	Disabled • AUTO •
Receive	er				
SPI P	X support		Receiver Mode		
01110	r aupport		. Necerver mode		
Note:	The SPI RX provider	will only w	ork if the required hard	ware is on board or conn	ected to an SPI bus.
FRSK	Y_X		<ul> <li>SPI Bus Receiver P</li> </ul>	rovider FRSKY	D16 MODE
Receive	er				
Receive SPI R	er X support		<ul> <li>Receiver Mode</li> </ul>		
Receive SPI R) Note:	er X support The SPI RX provider	will only w	<ul> <li>Receiver Mode</li> <li>ork if the required hard</li> </ul>	ware is on board or conn	ected to an SPI bus.

#### Arm/Disarm the Motor

**1.** The Default Arm/Disarm switch for Mobula 7 is AUX1(Channel 5), and you can also customize it with Betaflight Configurator.

Modes																			WIKI
Use ranges to di activate the more	efine the switch de. Remember t	es on you o save yo	ir transmi ur setting	tter and Is using	l corre the Sa	spondin we butto	g mode in.	assignm	ents.	A recei	ver char	inel tha	t give	s a read	ling be	stweer	n a range	min/max	will
ARM Add Range	AUX 1 • Min: 1400 Max: 2100	 900	' <b> </b> 1000			' 1200		'   1400		 1500	'   1600			 1800	1		 2000	'   2100	0
AIR MODE Add Range																			
ANGLE Add Range	AUX 2 • Min: 1200 Max: 2100	 900	1000		,	   ' 1200	1	'   1400	1	 1500	'   1600			 1800	1		 2000	'   2100	0

**2.**Turn on the Frsky transmitter (Use X9D+ as an example) and move to the MIXER interface, Set "SA" or "SB" switch etc. for Ch5 to ARM/DISARM the motor.



**3.**The default channel map for Mobula 7 Frsky version is TAER1234, please make sure your transmitter is matched, otherwise it will can't be armed. Toggle the AUX1 Switch ,the Green LED on the flight controller will getting to be solid, this indicates the motor was armed . And also you can found "Armed" displayed on your FPV Goggles or the FPV Monitor. Please make sure keep the Mobula 7 level before arming .Be careful and enjoy your flight now !



#### VTX Bands and Channels setup

Blue LED1 and Red I 5865MHZ(BAND1 a Blue LED1 and Red I 5845MHZ(BAND1 a	LED1 light Ind CH1) LED2 light Ind CH2)	t on, indici t on, indici	ating freq ating freq	uency uency				
Sm	Video in Video out aart audio	Blue LE				BI	ue LED 6 le last Blu on't light ( Red LED 8	e LED on 3.3–5.5V GND
Frequency and	channe	el freque	ency tab	le:				
FR CH	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
Band1	5865M	5845M	5825M	5805M	5785M	5765M	5745M	5725M
Band2	5733M	5752M	5771M	5790M	5809M	5828M	5847M	5866M
Band3	5705M	5685M	5665M	5665M	5885M	5905M	5905M	5905M
Bunub								
Band4	5740M	5760M	5780M	5800M	5820M	5840M	5860M	5880M

There are 3 ways to switch the vtx channels:

- 1.Short press to choose the VTX channel, press and holding the button to Choose the VTX Band (Can't save , it will lost the channel while power off)
- 2.Go to Betaflight CLI ,type the command:
- Set vtx\_band=3

Set vtx\_channel=1

Set vtx\_freq=5705

save

Notes: The vtx\_freq should match the vtx\_band and vtx\_channle as the VTX Channel list shows.

For example, if you set vtx\_freq=5732, you should set vtx\_band=5 and VTX\_channel=3

**3.**Enable Smartaudio for UART1, then move the stick of the transmitter (THR MID+YAW LEFT+ PITCH UP) to enter OSD Menu, Enter to Features, then enter to VTX SA to set VTX Band and channel



# Mixer type and ESC/motor protocol



#### ESC Check and Flash firmware

#### 1.Download New release Blhelisuite from:

https://www.mediafire.com/folder/dx6kfaasyo24l/BLHeliSuite 2.Connect the Crazybee F4 PRO flight controller to computer



**3.**Open the Device Manager of your computer, find the Ports, please make sure the Com port Serial Number is under 255, otherwise it will can't connect to the BLHELISUITE. You can change the port serial number like the bellowing step :

	Mice a     Mice a     Monit     Monit     Ports     Yers     S	and other poi ors ork adapters (COM & LPT) (Microelectro	nting devices	M Port (COM436)		G	anera Po	ot Settings	H Port (COMOSO) P   Details	
Recycle Br	Proce     Source     Source     Syste     Onive	d, video and m devices rsal Serial Bu	game controller s controllers	rs				Bits p	Data bits: 8	-
Uvanced Setting	D buffers (req wer settings to gher settings f	uires 16550 c o correct con for faster perf	ompatible UAR nection problem ormance.	10.				OK Cancel	Blop bits: 1	
Beceive Buffe	r: Low (1)			•	-1-	figh (14)	(14)	Lierauts		
Iranamit Buffe COM <u>P</u> ort Numbe	r: Low (1) r: [COM256		]	*	— į ,	ligh (16)	(16)			OK Cancel

**4.**Open the BLHELISUITE, Select SILABS BLHeli Bootloader (Cleanflight) from the third tab on the top side. Then Select the right Serial com port and Click connect. You can also Flash the new release BLHeli\_s firmware via the BLHEILISUITE, the firmware Target is "S-H-50"



# Flight controller firmware update

# 1.Install latest STM32 Virtual COM Port Driver

http://www.st.com/web/en/catalog/tools/PF257938

2.Install STM BOOTLOAD Driver (STM Device in DFU MODE)
3.Open Betaflight configurator and choose firmware target "CrazybeeF4FR", then select the firmware version.

**4.**There are 2 ways to get in DFU Mode: 1). solder the boot pad and then plug USB to computer 2).loading betaflight firmware and hit "flash", then it will getting into DFU Mode automatically.

**5.**Open Zadig tools to replace the drivers from STM32 Bootloader to WINUSB Driver.

**6**.Reconnect the flight controller to the computer after replace driver done , and open Betaflight Configurator, loading firmware and flash.

evice	Options Help		
CT1422	POOT OADED		-]
511432	BOUTLOADER		•][]60
Driver	STTub30 (v3.0.4.0)	WinUSB (v6. 1. 7600. 16385)	More Information WinUSB (libusb)
USB ID	0483 DF11		Ibusb-win32
	×	Replace Driver	Wini ISB (Microsoft)