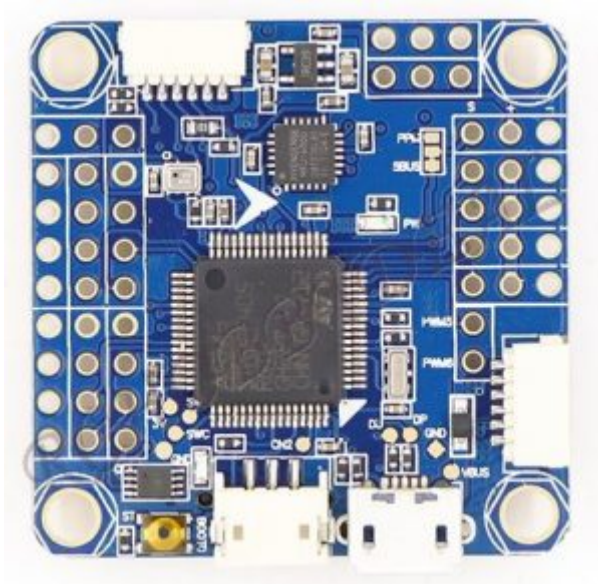


14. AUGUST 2017 VON FLORI

# OMNIBUS F4 V3 – Documentation

Since there is no documentation at all on any of these F4 boards, here is my try:

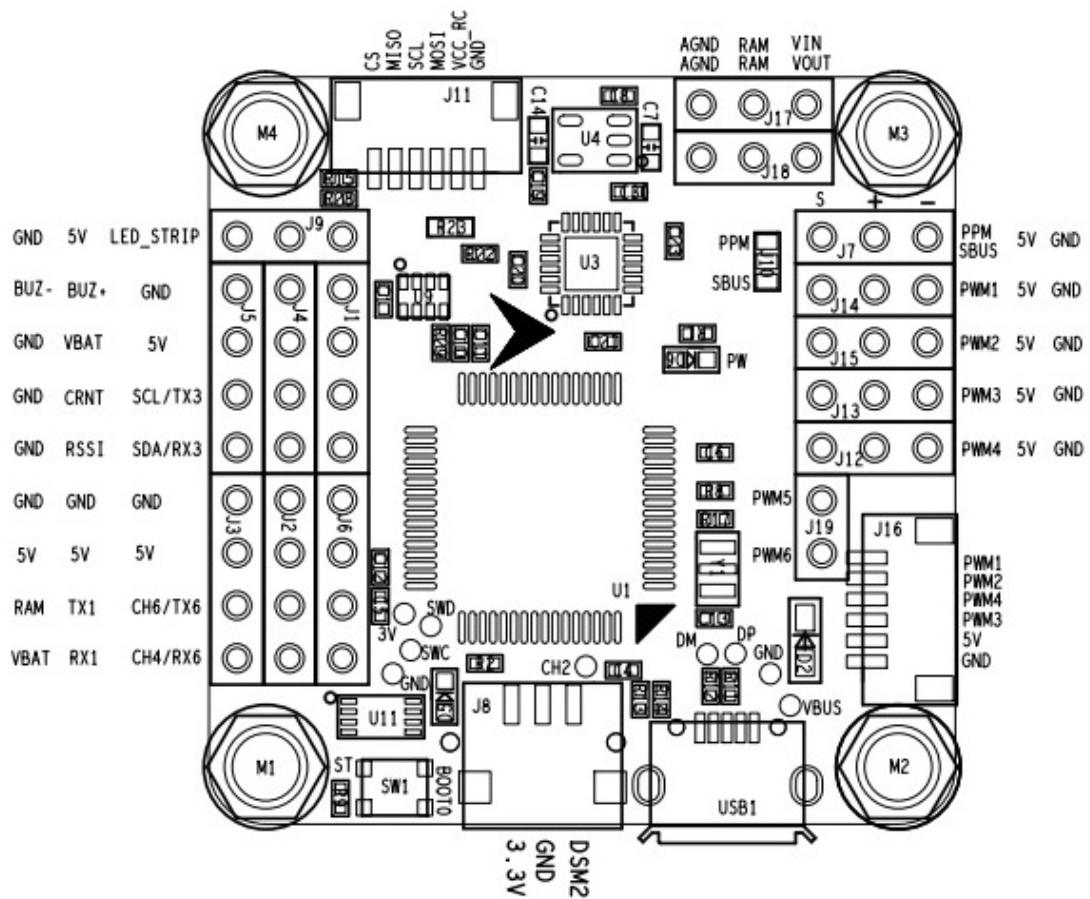
- STM32F405 LQFP64 (168Mhz, 1M flash, 192kB SRAM)
- MPU6000 6DOF IMU
- BMP280 barometer
- MAX7456 OSD (or fake)
- 5V Switching regulator (MP2359)
- 6pin SM06B-SRSS connector to ESC (fits Racestar RS20A4V2)
- DSM2 port for SPEKTRUM satellit
- USB CDC serial, DFU firmware update
- micro SD card slot for Blackbox logging





Latest firmware on [Betaflight github releases \(V3.2.0\)](#)

Configurator as [Chrome App](#)



**Specification:**

Power Supply [MP2359](#) (1.4MHz switching regulator)

Input Voltage: max 24V (input capacitors may limit voltage to 4S)

Output Current: max. 1.2A (1.8A current Limit)

3.3V LDO (100mA?)

### Accessible pins

<b>LABEL</b>	<b>PIN</b>	<b>TIMER</b>	<b>DMA</b>	<b>LQFP64 PIN</b>	<b>NOTE</b>
RSSI	A0			14	Not ADC capable
PWM5	A1	5,2	1,4	15	SoftSer 11 RX(/TX)
PWM4	A2	2,3	1,1	16	Motor 4
PWM3	A3	2,4	1,6	17	Motor 3
PWM6	A8	1,1	2,3	41	SoftSer 11 TX(/RX)
UART1 TX	A9	1,2	2,2	42	
UART1 RX	A10	1,3	?,?	43	DSM2 SPEKSAT
PWM1	B0	3,3	1,7	26	Motor 1
PWM2	B1	3,4	1,2	27	Motor 2
Buzzer	B4			56	
LED_STRIP	B6	4,1	1,0	58	WS2812 LED
PPM	B8	12,3	n.a	61	PPM (if jumpered)
CH2	B9			62	? wrong in BF github.
UART3 TX	B10	2,3(!)	?,?	29	Shared I <sup>2</sup> C resource
UART3 RX	B11	2,4(!)	?,?	30	Shared I <sup>2</sup> C resource
CRNT	C1	—	2,4	9	external current sense ADC
VBAT	C2	—	2,4	10	internal VBat voltage divider ADC

<b>LABEL</b>	<b>PIN</b>	<b>TIMER</b>	<b>DMA</b>	<b>LQFP64 PIN</b>	<b>NOTE</b>
UART6 TX	C6	8,1	2,2	37	
UART6 RX	C7	8,2	2,3	38	SBUS (if jumpered)

Note: Serial ports in CAPITALs are Serial1; Serial3; Serial6, Serial11  
(=SoftSer1); Serial12 (=SoftSer2)

In sourcecode and portforwarding use number-1: serial0; serial2; serial5...

### **Internal**

<b>LABEL</b>	<b>PORT</b>	<b>TIMER</b>	<b>DMA</b>	<b>LQFP64 PIN</b>	<b>NOTE</b>
USB_D+	A12			45	USB data plus
USB_D-	A11			44	USB data minus
SWD	A13			46	SWD_DIO
SWC	A14			49	SWD_CLK
OSC_IN	H0			5	
OSC_OUT	H1			6	
SPI1_MISO	A6			22	MPU600 SPI
SPI1_MOSI	A7			23	
SPI1_CLK	A5			21	
SPI1_CS_MPU	A4			20	
MPU_INT	C4			24	MPU6000 Interrupt output
SPI2_MISO	B14			35	SD card SPI
SPI2_MOSI	B15			36	

<b>LABEL</b>	<b>PORT</b>	<b>TIMER</b>	<b>DMA</b>	<b>LQFP64 PIN</b>	<b>NOTE</b>
SPI2_CLK	B13			34	
SPI2_CS_SD	B12			33	
SD_DETECT	B7			59	SD Card detect switch
SPI3_MISO	C11			52	BARO & OSD SPI
SPI3_MOSI	C12			53	
SPI3_CLK	C10			51	
SPI3_CS_Baro	B3			55	
SPI3_CS_OSD	A15			50	
INVERTER	C8			39	Logic Level inverter enable
LED1	C5			57	onboard LED (blue)
	B2			28	GND
	C3			11	resistor with NRST?
	C13			2	unrouted
	C14			3	unrouted
	C15			4	unrouted

Where to buy:

[ebay \(DE\)](#)

[ebay \(CN\)](#)

The following is pretty much for my own configuration, but might be useful for you as well:

Set throttle check min:

```
set min_check = 1045
```

Setup SoftSer 11 for runcam control:

```
resource Motor 5 none
```

```
resource Motor 6 none
```

```
resource serial_rx 11 A1
```

```
resource serial_tx 11 A8
```

Get Mag working on UART3/I<sup>2</sup>C2:

```
resource Serial_TX 3 none
```

```
resource Serial_RX 3 none
```

```
resource i2c_scl 2 b10
```

```
resource i2c_sda 2 b11
```

Dont forget to:

```
save
```