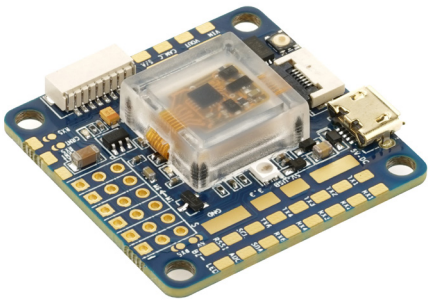
80101

OmniNXT F7

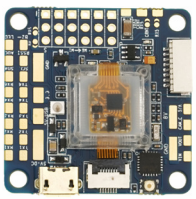
F7 / 32K Gyro Loop / 5VBEC / 8VBEC / Camera control / 6x UART

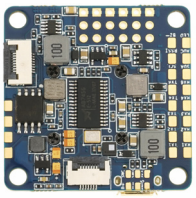


The OmniNXT F7 is Airbot's top of the range flight controller based on the newly designed NXT architecture. It uses the trusty MPU6000 Gyro with an additional ICM20608 on top. With the onboard damping box, the gyros run perfectly under 32k looptime. If you haven't already seen it, you should check out Josh's awesome video on different IMUs. The NXT also comes with 2 different BECs and 6 UARTs.

OmniNXT F7 supports 3-6s LIPO direct input, built-in BEC for camera / VTX and Power Filter.

This FC is designed to be able to pair with one of Airbot's 4in1 ESCs to form a powerful combo, and also has pins for individual ESCs too.





Features:

- F7 MCU processors
- Two gyros onboard: MPU6000 for sampling up to 8khz and ICM20608 for sampling up to 32khz
- 30.5x30.5mm Mounting holes
- Supports 3-6S Lipo
- Built-in 5V 1A BEC output (Buck)
- Built-in 8V 1A BEC with LC filter output for the camera and VTX (Buck)
- STM32 controls OSD chip over SPI in DMA mode (Betaflight OSD)
- More caps to reduce power noise
- Port for easy connection to Airbot 4-in-1 esc (SH1.0 8P)
- Solder pads added for SmartAudio and Camera Control

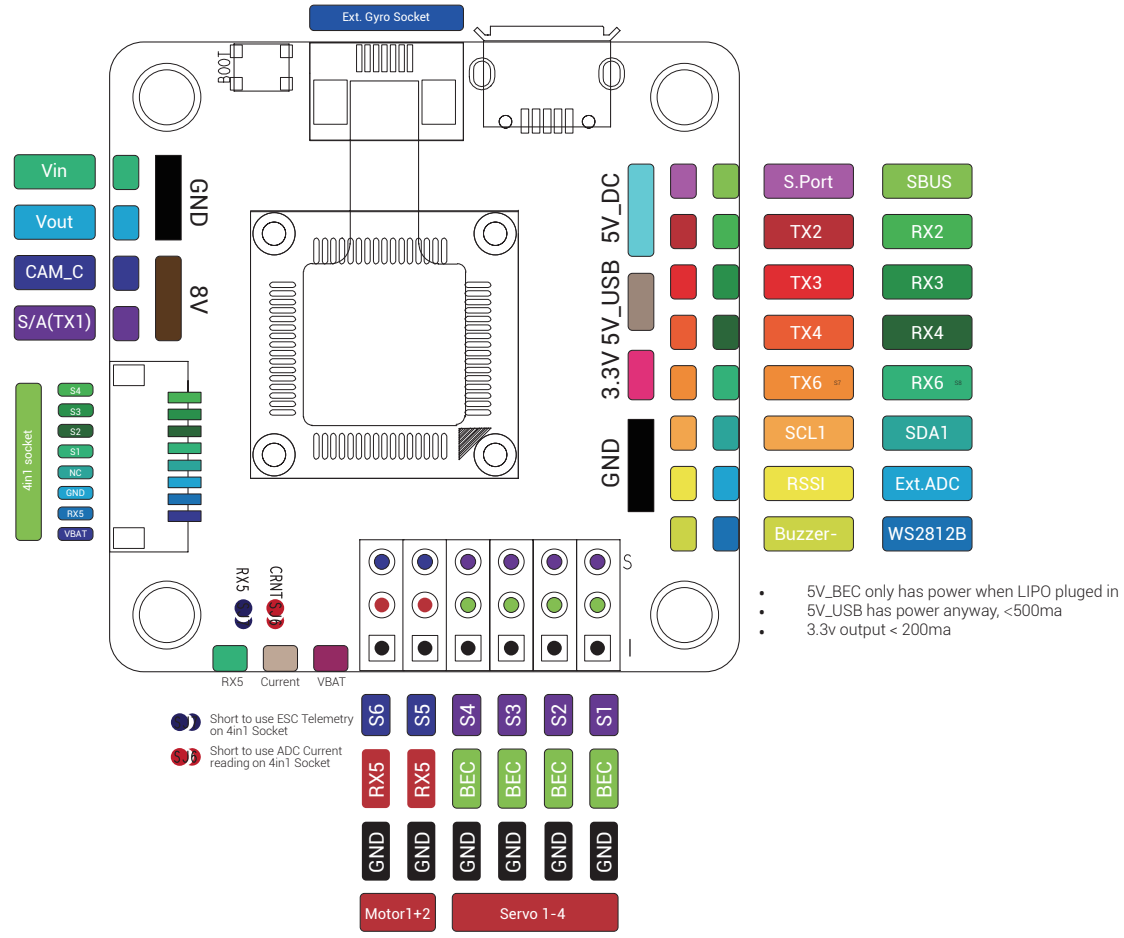
Remarks for INAV users:

- Use OmniNXT F7 target
- If you are going to use compass - connect pull-up resistors between SCL/SDA and +3.3V pad. The board doesn't have pull-up resistors for I2C
- Always use vibration damping when mounting the board
- UART6 is recommended for GPS connection

Resources:

Function	Solder Pad Silk screen	Resouces	MCU Pin	Notes
SBUS				Any UART RX
DSM2				Any UART
Smart Audio VTX	S/A	UART1	PB6	
Smartport				Any UART TX as half duplex
ESC Telemetry	RX5	UART5	PD2	
Camera Control	CAM_C		PB15	
IIC1_SDA	SDA		PB9	
IIC1_SCL	SCL		PB8	
GPS				Any UART
WS2812B LED	LED		PA9	
Buzzer	Bz-/Bz+		PC13	
Current sensor scale				NONE
Current sensor offset				NONE
Current range				NONE

Pinmap



- 5V_BEC only has power when LIPO pluged in
- 5V_USB has power anyway, <500ma
- 3.3v output < 200ma