iFlight SucceX D

iFlight SucceX-D F4 Flight Controller 20A ESC AIO Whoop Board User Manual

Model: SucceX-D F4 20A AIO Whoop Board

1. Introduction

This manual provides detailed instructions for the installation, configuration, and operation of the iFlight SucceX-D F4 Flight Controller 20A ESC AIO Whoop Board. This integrated board combines a powerful F4 flight controller with a 20A Electronic Speed Controller (ESC), designed for compact FPV drone builds such as Tiny Whoops and Cinewhoops. It features an MPU6000 gyroscope and is compatible with various FPV air units and receivers.

2. Safety Information

- Always disconnect the battery before performing any installation, maintenance, or wiring changes.
- Ensure correct polarity when connecting power. Incorrect connections can cause permanent damage to the board and other components.
- Soldering should be performed by individuals with experience in electronics. Use appropriate soldering equipment and techniques to avoid short circuits or cold solder joints.
- Avoid static discharge. Handle the board by its edges and use anti-static precautions.
- Verify all connections and configurations in Betaflight or similar software before connecting a battery for the first time.
- Keep the board away from moisture, dust, and extreme temperatures.
- This product is intended for hobby use. Operate FPV drones responsibly and in accordance with local regulations.

3. Product Overview

The iFlight SucceX-D F4 20A AIO Whoop Board integrates a flight controller and ESC into a single compact unit, simplifying wiring and reducing weight for small FPV drones.

Key Features:

- **Flight Controller:** F4 Processor, MPU6000 Gyroscope

- **ESC:** 20A (continuous) All-In-One, supporting DShot protocols
- **Input Voltage:** Supports 2-4S LiPo batteries
- **Mounting Pattern:** Standard Whoop size
- **Integrated:** BEC, OSD, Blackbox

Package Contents:

The package typically includes the following items:

- iFlight SucceX-D F4 20A AIO Whoop Board
- Capacitor
- Mounting hardware (screws, rubber grommets)
- Various connection cables (e.g., XT30 pigtail, receiver cables)

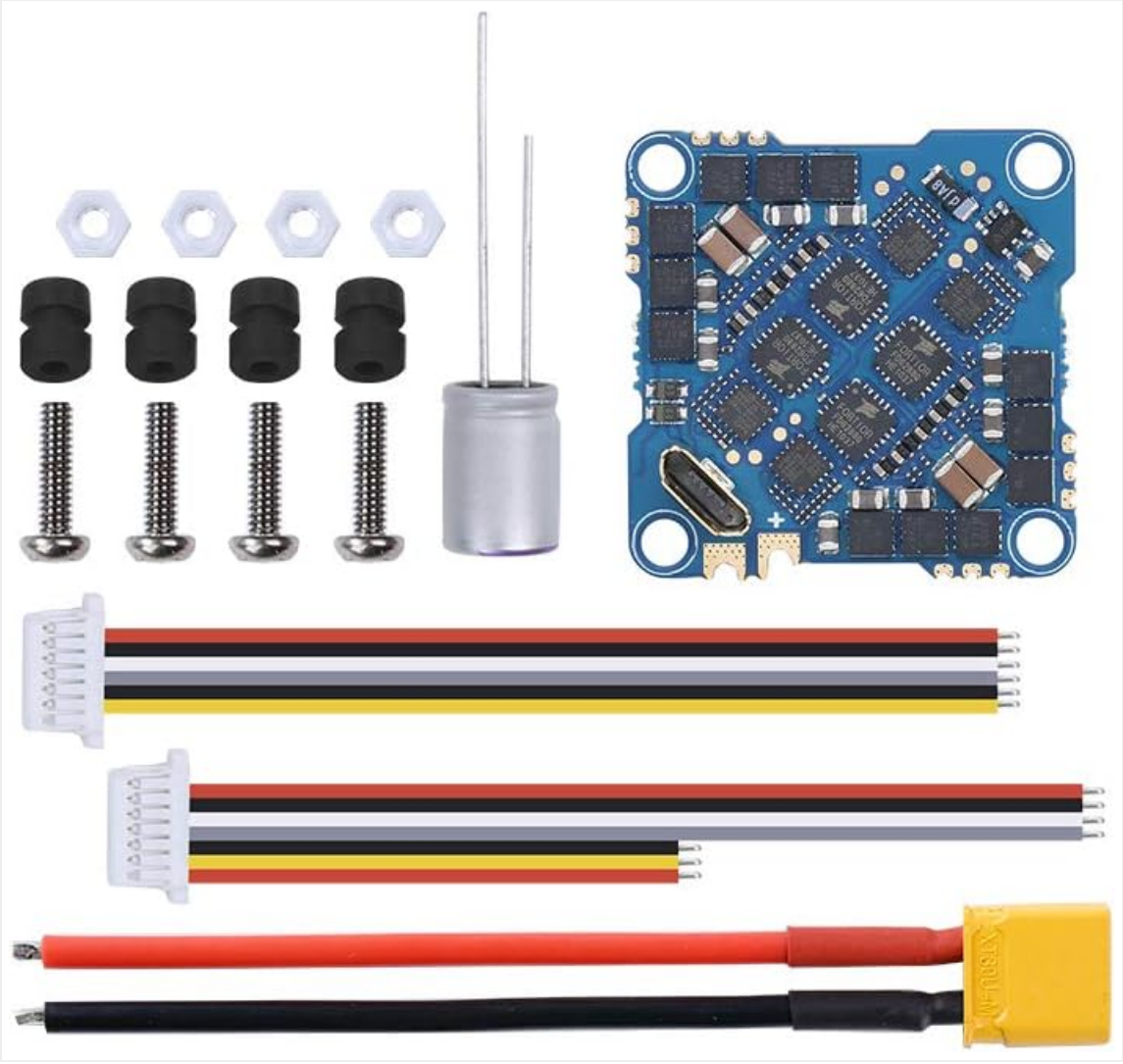

Image: Contents of the iFlight SucceX-D F4 20A AIO Whoop Board package, including the board, capacitor, mounting hardware, and various cables.

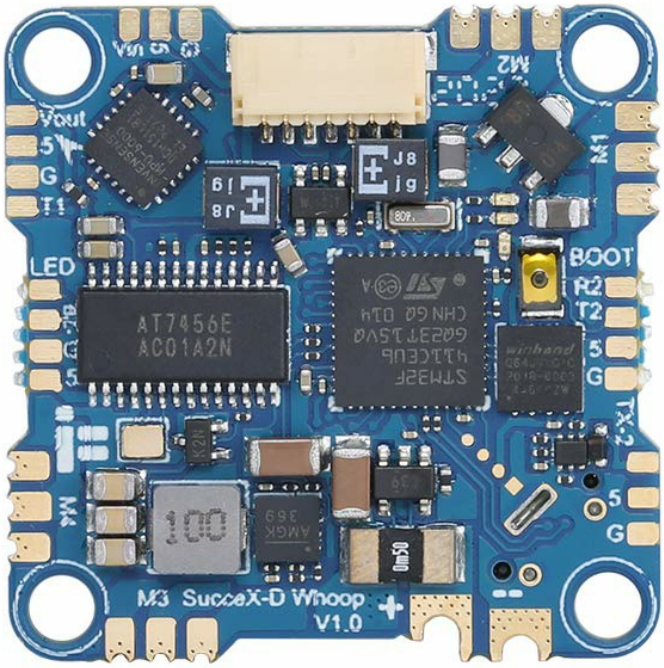

Image: Top view of the iFlight SucceX-D F4 20A AIO Whoop Board, showing the integrated components and layout.

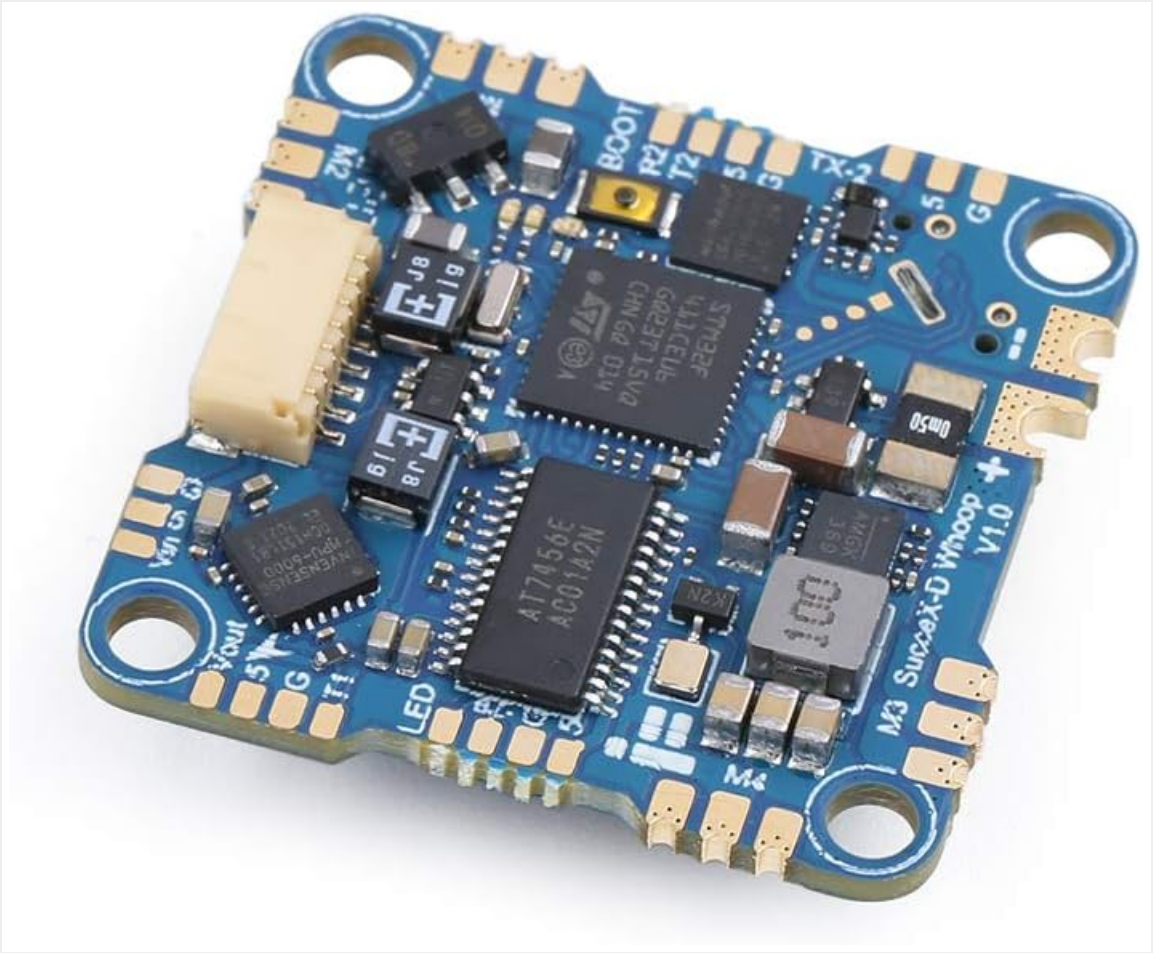

Image: Bottom view of the iFlight SucceX-D F4 20A AIO Whoop Board, showing additional components and solder pads.

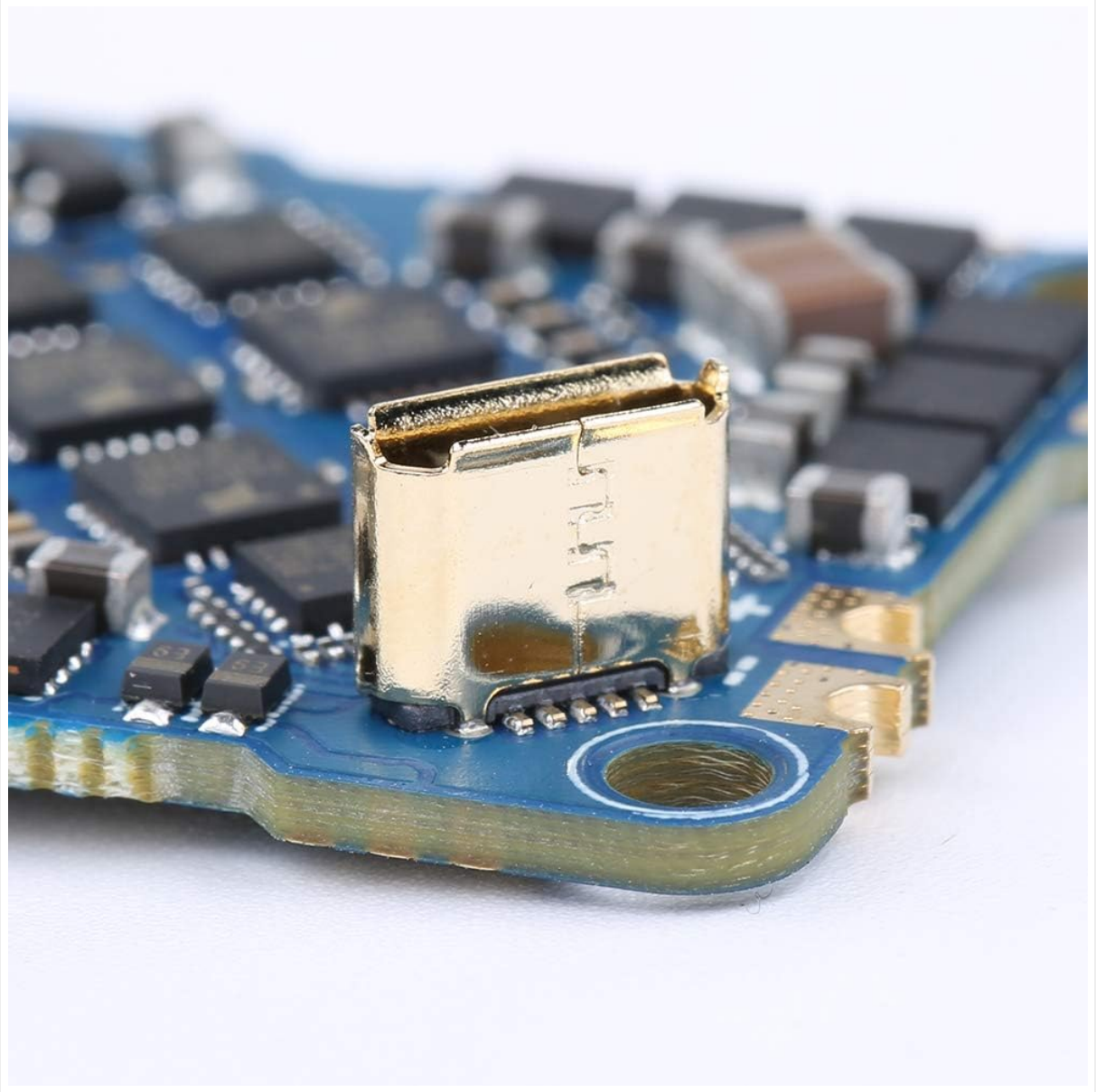

Image: Close-up view of the USB-C port on the iFlight SucceX-D F4 20A AIO Whoop Board, used for configuration.

4. Setup and Wiring

Careful wiring is essential for proper function and to prevent damage. Refer to the wiring diagram below for all connections.

General Wiring Guidelines:

- Ensure all solder joints are clean and strong.
- Double-check all polarities (+/-) before applying power.
- Insulate all exposed solder pads and wires to prevent short circuits.
- Use a smoke stopper for the first power-up with a battery.

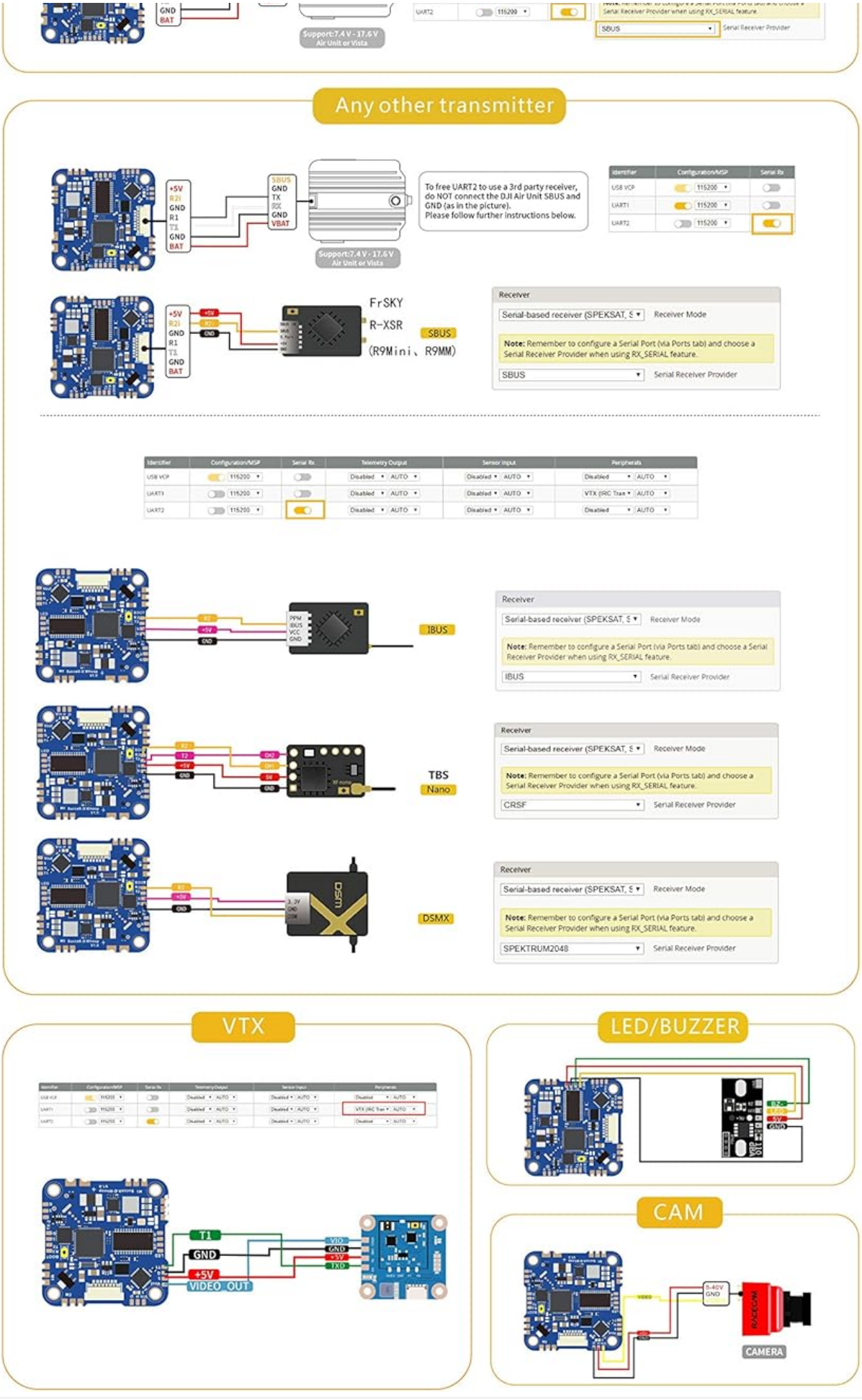

Image: Comprehensive wiring diagram for the iFlight SucceX-D F4 20A AIO Whoop Board, illustrating connections for DJI Whoop, various receivers, VTX, LED/Buzzer, and Camera.

Specific Connections:

4.1. DJI Whoop Wiring

For DJI FPV Air Unit compatibility, connect as shown in the diagram. Ensure the correct UART is selected in Betaflight for serial communication.

- **5V:** Connect to 5V pad on Air Unit.
- **GND:** Connect to GND pad on Air Unit.
- **UART2 TX:** Connect to RX pad on Air Unit.
- **UART2 RX:** Connect to TX pad on Air Unit.

4.2. Receiver Wiring (Other Transmitters)

The board supports various receiver types. Connect your receiver to the appropriate UART and configure it in Betaflight.

- **F.SKY (R-XSR, R9MM):** Typically uses SBUS. Connect SBUS output to the designated SBUS pad (often UART1 RX).
- **IBUS:** Connect IBUS output to a free UART RX pad.
- **TBS Crossfire (CRSF):** Connect TX/RX of Crossfire to a free UART TX/RX pair.
- **DSMX:** Connect DSMX output to a free UART RX pad.

Note: To use UART2 for a 3rd party receiver, you may need to disable the DJI FPV Air Unit configuration on UART2 in Betaflight. Refer to the Betaflight configurator for specific port assignments.

4.3. VTX (Video Transmitter) Wiring

Connect your analog VTX to the designated pads for video signal, power, and ground.

- **VTX Power:** Connect to VTX+ pad (usually 5V or VBAT depending on VTX).
- **VTX Ground:** Connect to GND pad.
- **Video Signal:** Connect to VTX pad.

4.4. LED/Buzzer Wiring

Connect an external LED strip or buzzer to the dedicated pads for visual and audible feedback.

- **LED:** Connect to LED pad.
- **Buzzer:** Connect to BZ+ and BZ- pads.

4.5. Camera Wiring

Connect your FPV camera to the board for video input.

- **Camera Power:** Connect to CAM+ pad (usually 5V).
- **Camera Ground:** Connect to GND pad.
- **Video Signal:** Connect to CAM pad.

Initial Betaflight Configuration:

After wiring, connect the board to your computer via the USB-C port and open the Betaflight Configurator. Ensure you have the latest Betaflight firmware installed on the board.

1. **Firmware Update:** It is highly recommended to flash the latest stable Betaflight firmware for the SucceX-D F4 board.
2. **Port Configuration:** Enable Serial RX on the UART connected to your receiver. Enable MSP for the

UART connected to your FPV Air Unit (if applicable).

3. **Configuration Tab:** Set ESC protocol (e.g., DShot600), Gyro update frequency, PID loop frequency.
4. **Receiver Tab:** Verify stick inputs are correct. Adjust channel mapping if necessary.
5. **Modes Tab:** Configure arming switch, flight modes (Angle, Acro, Horizon), and other auxiliary functions.
6. **Motors Tab:** Test motor direction and functionality (*remove propellers before testing motors!*).
7. **OSD Tab:** Customize your On-Screen Display elements.

5. Operating Instructions

Once the board is correctly wired and configured in Betaflight, you can proceed with flight operations.

- **Pre-Flight Check:** Always perform a visual inspection of your drone before each flight. Check for loose wires, damaged propellers, and secure battery connection.
- **Battery Connection:** Connect the LiPo battery to the XT30 pigtail. The board will power up, and you should hear a series of beeps from the motors indicating ESC initialization.
- **Arming:** Arm the drone using the configured switch on your remote controller. Ensure you are in a safe, open area away from people and obstacles.
- **Flight:** Control the drone using your remote controller. Start with gentle movements to get accustomed to the drone's response.
- **Disarming:** Disarm the drone using the configured switch after landing. Always disarm before approaching the drone.
- **Post-Flight:** Disconnect the battery immediately after flight. Inspect the drone for any damage.

6. Maintenance

- **Cleaning:** Periodically clean the board with a soft brush and isopropyl alcohol to remove dust and debris. Ensure the board is completely dry before powering on.
- **Firmware Updates:** Regularly check for new Betaflight firmware releases. Updating firmware can provide performance improvements, bug fixes, and new features. Follow official Betaflight flashing procedures carefully.
- **Component Inspection:** Inspect solder joints and components for any signs of damage, corrosion, or loose connections.
- **Storage:** Store the board in an anti-static bag in a dry, cool environment when not in use.

7. Troubleshooting

This section addresses common issues you might encounter with your SucceX-D F4 AIO board.

Common Issues and Solutions:

- **Board does not power on / No lights:**
  - Check battery connection and polarity.
  - Inspect for short circuits on the board or connected components.
  - Ensure the power lead is securely soldered.
- **No connection to Betaflight Configurator via USB:**

- Ensure correct USB drivers (e.g., STM32 Virtual COM Port Driver, Zadig) are installed.
- Try a different USB cable and USB port on your computer.
- If the board was powered by a battery during USB connection, ensure the 5V regulator is functional. Some users reported USB port damage or 5V regulator failure. Use a powered USB hub as a precaution.
- Try connecting in DFU mode (hold BOOT button while plugging in USB).

- **Motors not spinning / Only some motors spin:**
  - Verify motor connections to the ESC pads.
  - Check ESC protocol settings in Betaflight.
  - Ensure motors are enabled and calibrated in Betaflight.
  - Inspect for damaged ESC FETs or motor windings.

- **Gyroscope issues (e.g., yaw not working, erratic movements):**
  - This could indicate a faulty MPU6000 gyroscope. If the board is new and exhibits this behavior, contact the seller for support.
  - Ensure the board is mounted securely and free from vibrations.

- **Receiver not detected:**
  - Check receiver wiring to the correct UART RX pad.
  - Ensure Serial RX is enabled for the corresponding UART in Betaflight Ports tab.
  - Verify the correct receiver protocol (e.g., SBUS, IBUS, CRSF) is selected in the Betaflight Configuration tab.
  - Ensure the receiver is bound to your transmitter.

- **Board smokes or catches fire on power-up:**
  - **Immediately disconnect power.** This indicates a severe short circuit or component failure.
  - Carefully inspect all wiring for shorts, especially power leads.
  - If a smoke stopper was not used, this is a critical step for future builds.
  - A board exhibiting this behavior is likely damaged beyond repair and should be replaced.

8. Specifications

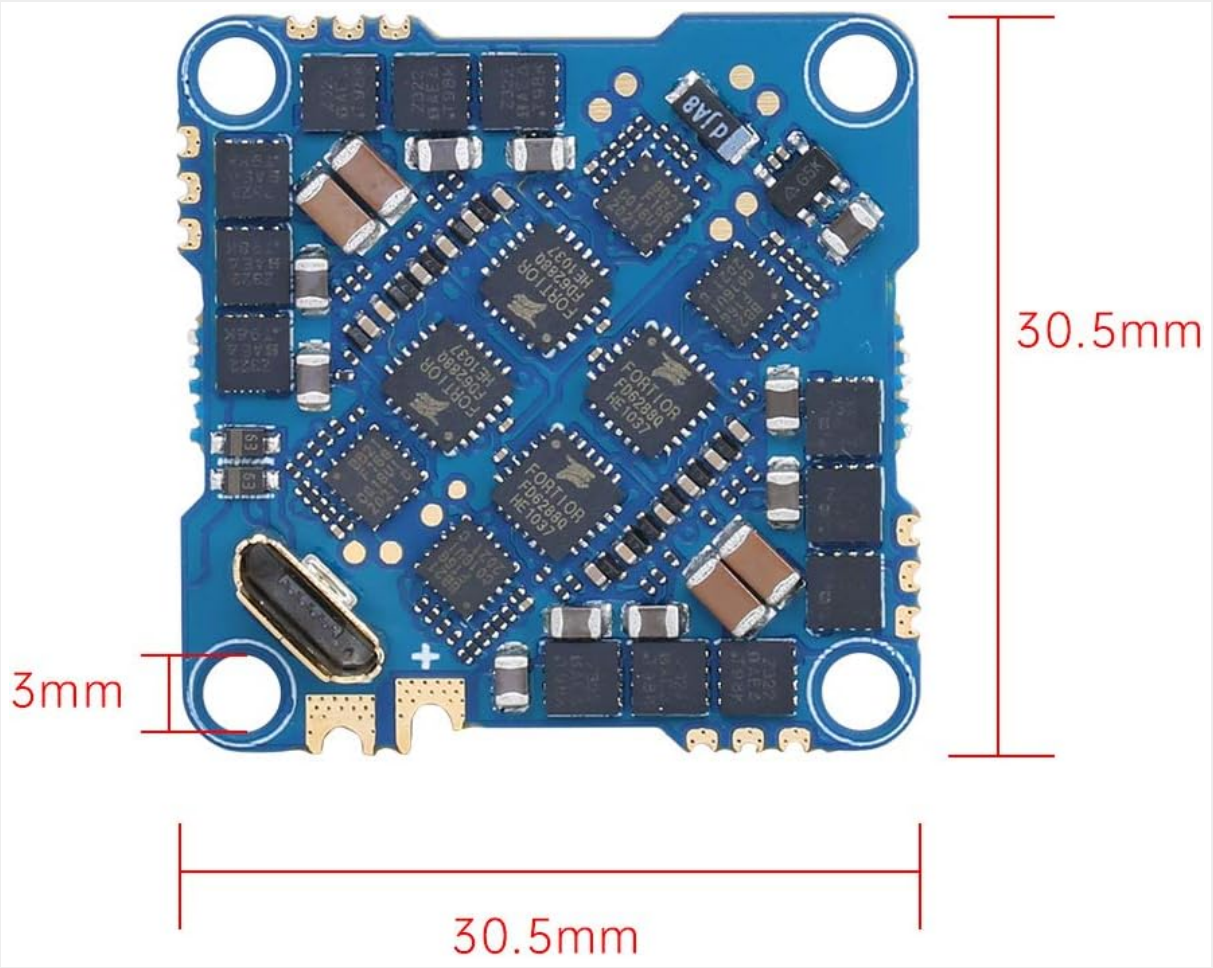

Image: Physical dimensions of the iFlight SucceX-D F4 20A AIO Whoop Board, showing 30.5mm x 30.5mm mounting with 3mm hole diameter.

Image: The iFlight SucceX-D F4 20A AIO Whoop Board on a scale, showing a weight of 6.7 grams.

Feature	Detail
Brand	iFlight
Model Name	SucceX D
Flight Controller	F4 Processor
Gyroscope	MPU6000
ESC Current	20A (Continuous)
Input Voltage	2-4S LiPo
Mounting Pattern	30.5 x 30.5 mm (M3 holes)
Item Weight	1.13 ounces (approx. 32g) / Board only: 6.7g
Connectivity Technology	Wi-Fi (for some configurations, e.g., ESP32 based receivers)
Material	Plastic (PCB material)
UPC	619191386772

9. Warranty and Support

iFlight products are typically covered by a limited warranty against manufacturing defects. The specific terms and duration of the warranty may vary by region and retailer. Please retain your proof of purchase. For technical support, warranty claims, or further assistance, please visit the official iFlight website or contact your authorized dealer. Provide your product model and purchase details when seeking support.
Official iFlight Website: www.iflight-rc.com