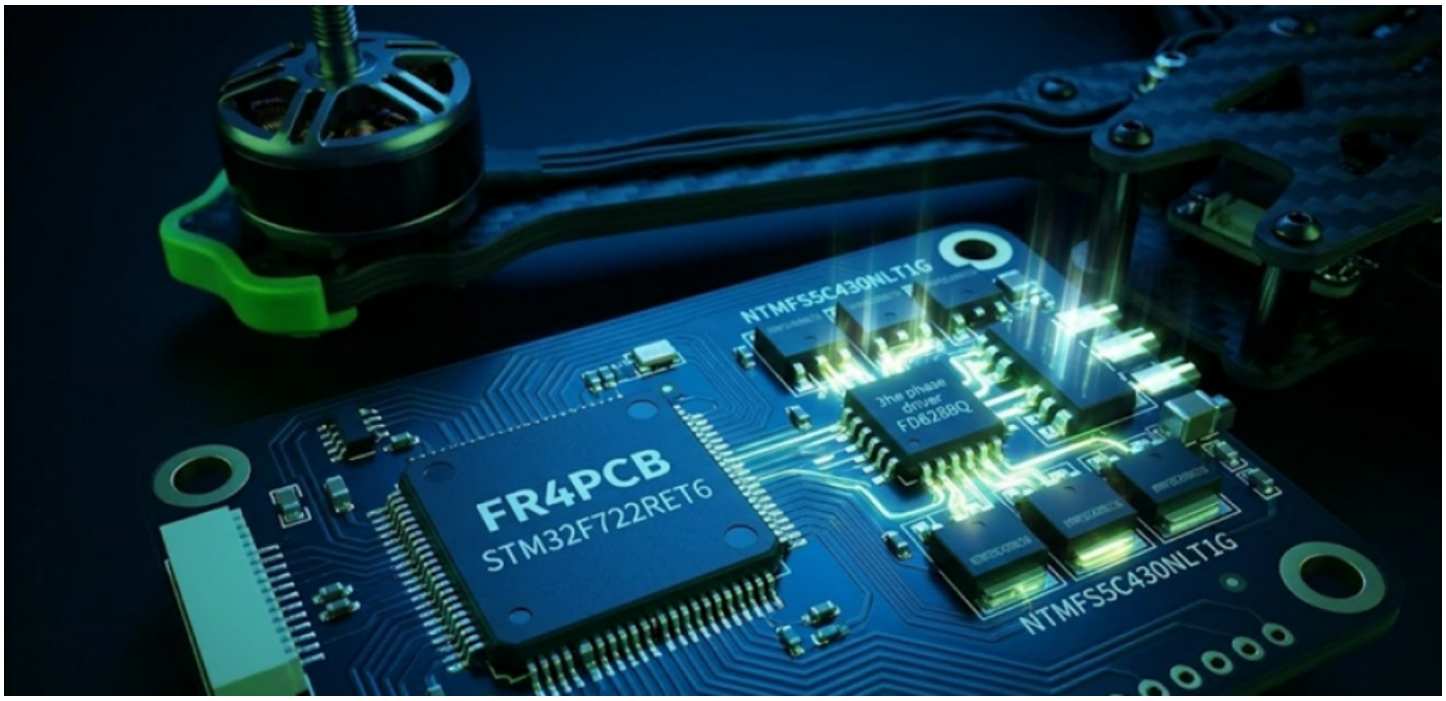
FR4PCB Comprehensive UAV Chipset Solutions



Shenzhen, Guangdong Mar 26, 2026 (Issuewire.com**)** - IntroductionPowering the Future of Flight: FR4PCB’s Comprehensive UAV Chipset SolutionsDetails

Powering the Future of Flight: FR4PCB’s Comprehensive UAV Chipset Solutions

Rapidly evolving landscape of Unmanned Aerial Vehicle (UAV) technology, high-performance hardware architecture is the cornerstone of stable flight, precision obstacle avoidance, and extended endurance. As a leading provider of UAV components, **FR4PCB** is dedicated to delivering full-stack chipset solutions—from flight control and inertial navigation to communication links.

Part Number

Quantity

Package

Manufacturer / Brand

Description & Application

FG-120H

5,000

Module

Beijing Tianjian Jiejia

Navigation-grade single-axis FOG (Fiber Optic Gyro); Zero-bias stability 0.001°/h. Suitable for missiles and strategic nuclear submarine navigation systems.

FG-30

10,000

Module

Beijing Tianjian Jiejia

Tactical-grade single-axis FOG; Size 60×35×31mm, Weight ≤120g. Suitable for tactical missiles and precision-guided weapons.

MUG22-1S

25,000

SOP-8

Micro-Epoch

All-digital output MEMS gyroscope; High shock resistance (15000g). Suitable for small missiles and guided artillery shells.

BMI270

22,000

LGA14

Bosch

6-axis inertial measurement unit (IMU); Shock resistance 20000g. Suitable for UAVs and tactical guidance.

BMP280

50,000

LGA8

Bosch

High-precision barometric pressure sensor; Altitude measurement accuracy ±1m. Suitable for UAV altitude control.

STM32F722RET6

25,000

LQFP64

STMicroelectronics

High-performance ARM Cortex-M7 MCU; 216MHz. Suitable for weapon fire control systems.

STM32F405RET6

18,000

LQFP64

STMicroelectronics

ARM Cortex-M4 MCU; 168MHz with DSP support. Suitable for UAV flight controllers.

AT32F435RGT7

13,000

LQFP64

ArteryTek

STM32-compatible ARM Cortex-M4 MCU; 180MHz. Suitable for industrial/military electronic equipment.

SX1276IMLTRT

32,000

QFN28

Semtech

LoRa RF chip; 15km transmission range. Suitable for long-range UAVs and IoT sensors.

SX1278IMLTRT

35,000

QFN28

Semtech

LoRa RF chip; Spread spectrum modulation with high anti-interference. Suitable for battlefield communication systems.

LR1121IMLTRT

17,000

QFN32

Semtech

Multi-band RF chip; Supports LoRa/GPS. Suitable for UAV navigation and communication.

ICM-20690

60,000

16-pin LGA

TDK InvenSense

6-axis MEMS IMU; Shock resistance 10000g. Suitable for UAVs and missile stabilization systems.

ICM-42688-P

43,059

QFN24

TDK InvenSense

6-axis MEMS IMU; Ultra-low noise design. Suitable for high-precision guided weapons.

MPU6000

100,000

QFN-24

TDK InvenSense

6-axis MEMS IMU; Widely used in UAVs, missiles, and robotics.

FD6288Q

28,000

TSSOP-20

Fortior Tech

3-phase BLDC motor gate driver. Suitable for UAVs and robot power systems.

NTMFS5C430NLT1G

100,000

DFN5X6

onsemi

N-Channel MOSFET; Low on-resistance. Suitable for UAV ESCs (Electronic Speed Controllers).

SE5004L-R

21,000

QFN20

SKYWORKS

RF Amplifier; Operating frequency 9kHz–6GHz. Suitable for radar and communication systems.

ICM-42688

126,199

14-pin LGA

TDK InvenSense

High-performance 6-axis IMU with FIFO buffer; Supports wake-on-motion. Suitable for wearable devices and smart homes.

ICM-42688-A

15,000

14-pin LGA

TDK InvenSense

Industrial-grade version of ICM-42688; Temp range -40°C~105°C. Suitable for industrial automation.

ICM-42605

30,000

14-pin LGA

TDK InvenSense

Low-power 6-axis MotionTracking device. Suitable for wearables and smart home tech.

ICM-42638

85,000

14-pin LGA

TDK InvenSense

Low-power 6-axis IMU with I3C interface and APEX motion engine. Suitable for UAVs and robotics.

ICM-20689

50,000

16-pin LGA

TDK InvenSense

6-axis IMU with pressure sensor interface; Supports altitude measurement. Suitable for UAVs and smartwatches.

TDKZSSC3123

20,000

SOIC-8

TDK

Digital temperature sensor; ±0.5°C accuracy. Suitable for industrial control and medical equipment.

ITG-3050

15,000

QFN-24

TDK InvenSense

3-axis MEMS gyroscope; Ultra-low noise with internal temp sensor. Suitable for consumer electronics and UAVs.

ICM-42670-P

30,000

14-pin LGA

TDK InvenSense

Low-power 6-axis IMU; Supports I3C interface with internal FIFO. Suitable for wearables and IoT.

ICM-40627

25,000

14-pin LGA

TDK InvenSense

6-axis IMU; Integrated 3-axis gyro + 3-axis accel; Low power design. Suitable for UAVs and robotics.

ICM-42607

40,000

14-pin LGA

TDK InvenSense

Low-power 6-axis IMU with I3C and APEX engine. Suitable for smart homes and industrial automation.

IM-20670

18,000

14-pin LGA

TDK InvenSense

6-axis IMU; High resolution with internal FIFO and motion wake-up. Suitable for smartphones and UAVs.

ICM-42688-V

89,000

14-pin LGA

TDK InvenSense

6-axis IMU; I3C/I2C/SPI support; Temp -40°C~105°C; Shock resistance 20000g.

- **FR4PCB: Your Trusted Partner in UAV Core Hardware**

FR4PCB is more than just a component distributor; we are deep technical participants in the UAV industry. We understand the rigorous demands for stability in extreme environments. Therefore, we have established a strict screening system to ensure that every chip leaving our facility—such as the **FG-120H** and **FG-30**—possesses exceptional reliability and environmental adaptability.

With a robust supply chain and a dedicated technical support team, we provide closed-loop services ranging from PCB design consultation to critical component selection.

- **Core Solutions and Product Portfolio**
- **High-Performance Flight Control Centers (MCU)**

The flight control system is the "brain" of the drone. We provide top-tier processors based on ARM® Cortex®-M4/M7 cores to meet varying computational complexities:

- **The Industry Standard**: The **STM32F405RET6** remains the "Golden Standard" for racing and industrial drones.
- **Extreme Computing Power**: For missions requiring real-time image processing or complex trajectory planning, the **STM32F722RET6** and **AT32F435RGT7** offer superior calculation efficiency and ultra-low task latency.

- **Precision Inertial Navigation (IMU & Sensors)**

Stable attitude control relies on accurate sensor data. FR4PCB offers a full range of Inertial Measurement Units (IMU) from consumer to industrial grades:

- **Classic Stability**: Time-tested models like the **MPU6000**, **ICM-20689**, and **ICM-20690** are still the top choices for classic airframes due to their low quadrature error and excellent vibration rejection.
- **Next-Gen Precision**: We highlight the **ICM-42688** series (including **ICM-42688-P**, **ICM-42688-A**, and **ICM-42688-V**), alongside the **ICM-42605** and **ICM-42607**. These chips feature ultra-low noise density and, when paired with the **BMI270**, achieve the ultimate in motion sensing.
- **Altitude & Pressure Control**: Integrated with the **BMP280** barometer and the **TDKZSSC3123** signal conditioning chip, drones can achieve centimeter-level hovering precision.
- **Specialized Applications**: For diverse mission requirements, we also stock the **ICM-42638**, **ICM-42670-P**, **ICM-40627**, and **ITG-3050** sensor solutions.

- **Robust Power and Energy Management**
- **Drive Management**: The **FD6288Q** 3-phase gate driver, combined with the high-performance **NTMFS5C430NLT1G** power MOSFET, ensures precise motor output and power redundancy in high-wind conditions.
- **Sensor Fusion**: The **MUG22-1S** and **IM-20670** excel in complex energy monitoring and modular data acquisition.

- **Long-Range Communication & RF Links**

In Beyond Visual Line of Sight (BVLOS) operations, signal integrity is paramount:

- **LoRa Technology**: Utilizing **SX1276IMLTRT**, **SX1278IMLTRT**, and the latest **LR1121IMLTRT** solutions, we significantly extend data transmission distances in complex urban or remote mountainous areas.
- **Signal Enhancement**: The **SE5004L-R** front-end amplifier ensures signal penetration even in high-interference environments.

- **Target Application Scenarios**

FR4PCB’s chipset solutions are widely deployed across various sectors:

- **Agricultural Protection**: Leveraging the reliability of the **FG-120H** module to support 24/7 high-intensity operations in crop spraying and monitoring.
- **Cinematography**: Relying on the stability of the **ICM-42688-P** to provide ultra-smooth gimbal stabilization for 4K/8K video capture.
- **Power Line Inspection**: Utilizing the high-performance computing of the **AT32F435RGT7** for automated obstacle avoidance and precision inspection.
- **Logistics & Delivery**: Combining the cost-effective **FG-30** and **MUG22-1S** solutions with **SX1276** long-range communication to lower the deployment costs of urban delivery fleets.

- **Why Choose FR4PCB?**

In the UAV industry, the quality of a single chip can determine the safety of the entire aircraft. FR4PCB is committed to:

- **Guaranteed Original Components**: All models (e.g., **MPU6000**, **ICM-20690**) are sourced from original manufacturers or authorized channels.
- **Deep Technical Customization**: We don't just sell chips; we understand how to maximize their performance on your PCB.
- **Rapid Supply Chain Response**: We maintain strong global sourcing capabilities for high-demand or hard-to-find components.

Contact Us: If you are looking for high-performance UAV hardware cores or seeking optimization for your circuit designs, visit us at **https://www. fr4pcb.com**

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