FR4PCB Comprehensive UAV Chipset Solutions
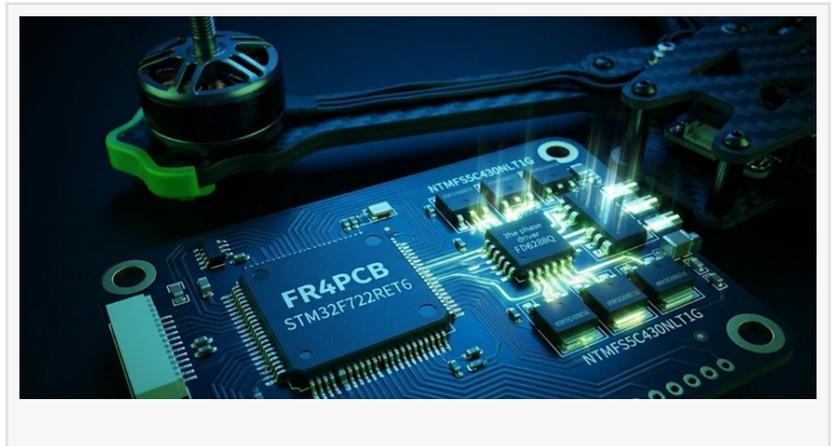
SHENZHEN, GUANGDONG, CHINA, March 26, 2026 /EINPresswire.com/ -- IntroductionPowering the Future of Flight: FR4PCB's Comprehensive UAV Chipset SolutionsDetails
Powering the Future of Flight: FR4PCB's Comprehensive UAV Chipset Solutions

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.tech/

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