

Qualcomm

Qualcomm Flight™ RB5 5G Platform

World's 1st 5G and AI-enabled drone platform and reference design with high-performance and heterogeneous computing and long-range connectivity.

The platform's high-performance and heterogeneous computing at ultra-low power consumption, power efficient inferencing at the edge for AI and Machine Learning (ML), breakthrough camera capabilities, robust security and 5G and Wi-Fi 6 for connectivity—allows ecosystem members to create reliable, autonomous drones. With 5G connectivity this platform enhances critical flying capabilities beyond visual line-of-sight (BVLOS) to support evolving drone use cases across industries. The Qualcomm Flight RB5 5G Platform is equipped with a Qualcomm® Secure Processing Unit (SPU), delivering best in class cryptographic security for safety requirements.

Highlights

Long-range connectivity

Cellular (LTE / 5G / CBRS) and Wi-Fi 6 for consistent and enhancing long-range connectivity for beyond visual line-of-sight for safer, more reliable flight.

- 5G connectivity* for low latency, high bandwidth data transfer
- Wi-Fi 6 for drone-to-drone / swarm support



End-to-end integration

End-to-end integration with unmanned aircraft systems traffic management (UTM) / service supplier (USS).



Dedicated high performance computer vision

Dedicated enhanced visual analytics (EVA) hardware engine enables computer vision apps, VIO, vSLAM and DFS.



Inference at the edge

Dedicated Qualcomm® Hexagon™ Tensor Accelerator (HTA) delivering 8 TOPS for accurate edge inferencing that reduces processing time for mission-critical drone applications.



Vault-like security

From crypto to DRM, the Qualcomm Secure Processing Unit (SPU) offers security for drones at every level. It supports hardware root of trust, Qualcomm® Trusted Execution Environment, Secure boot and camera security.



* With optional 5G modem

- Film & Entertainment
- Agriculture Mapping
- Delivery
- Infrastructure / Asset Inspection
- Public Safety

Features

- **Qualcomm Spectra™ 480 Image Signal Processor** designed to deliver a premium camera experience that can process 2 Gigapixels per second with high-performance capture of 200 megapixel photos, 8K video recording and 4K HDR video capture.
- **Qualcomm® Adreno™ 650 Visual Processing Subsystem** delivers quality graphics for larger-than-life immersive experiences using the Adreno graphics processing unit (GPU) and video processing unit (VPU).
- **Hexagon 698 DSP with Hexagon Vector eXtensions (HVX), Hexagon Tensor Accelerator** to support sophisticated, on-device AI processing, and delivers mobile-optimized computer vision (CV) experiences for a wide array of use cases.
- **Qualcomm® Kryo™ 585 CPU:** Manufactured in 7nm process node, optimized across four high-performance Kryo Gold cores and four low-power Kryo Silver cores.
- **Qualcomm Secure Processing Unit (SPU)** offers vault-like security that is designed to help safeguard your data. It supports hardware root of trust, Qualcomm Trusted Execution Environment, Secure boot and camera security.

Software

- **Software support for :** Ubuntu 18.04, Linux distribution based off Yocto Dunfell, Kernel 4.19, ROS 2, PX4 Software
- **Qualcomm® Neural Processing SDK:** Optimizing deep learning processing performance across available resources to achieve superior edge computing experience.
- **Qualcomm® Computer Vision SDK:** Offers a mobile-optimized computer vision (CV) library which enables new user experiences like gesture recognition, face detection, tracking and recognition, augmented reality and more.
- **Hexagon DSP SDK:** Designed to optimize the features, and performance of multimedia software that allows audio, imaging, embedded vision and heterogeneous computing acceleration on the Hexagon DSP to create compelling multimedia user experiences and help provide improvements in the power dissipation and performance of intensive multimedia and computational applications.

Ordering Information

[Purchase through ModalAI](#)

Reference Design



Platform Specifications

	Qualcomm Flight RB5 5G Platform
CPU	Kryo 585 CPU, up to 2.84 GHz
ISP	Qualcomm Spectra 480 ISP with Dual 14-bit image signal processing
Camera	Up to 200 MP photo capture, Up to 25 MP dual camera @ 30 FPS with Zero Shutter Lag, Up to 64 MP single camera @ 30 FPS with Zero Shutter Lag. Support for 12 cameras by D-PHY and 18 cameras by C-PHY (7 concurrent)
Video	8K video capture @ 30 FPS, Up to 10-bit color depth video capture, 4K video capture @ 120 FPS, 4K HDR video capture
GPU	Adreno 650 GPU with support for Open GL ES and OpenCL
DSP	Hexagon 698 DSP with HVX, Hexagon Tensor Accelerator
Memory & Storage	LPDDR5 up to 2750 MHz, LPDDR4x up to 2133 MHz. Memory Density: up to 16 GB
Wireless Connectivity	Advance connectivity using Qualcomm® FastConnect™ 6800 System with Wi-Fi 6, Wi-Fi 6-ready, 802.11ad, 802.11ay, 802.11ac Wave 2, 802.11a/b/g/n. Support for Dual-band simultaneous (DBS), WPA3-Enterprise, WPA3-Enhanced Open, WPA3 Easy Connect, WPA3-Personal, Bluetooth® 5.1, Optional 5G, LTE, CBRS
Modem (optional)	2G/3G/4G/5G - mmWave and sub-6 GHz bands (Rel. 15) 3.7 Gbps DL, 2.5 Gbps UL, 400 MHz mmW, 100 MHz sub-6
Security	Camera Security, Crypto Engine, Cryptographic Accelerator, Qualcomm Trusted Execution Environment, Secure Boot. Qualcomm® Crypto Engine Core is FIPS 140-2 certified.

Qualcomm Computer Vision SDK, Qualcomm Spectra, Qualcomm Adreno, Qualcomm Kryo, Qualcomm Neural Processing SDK, Qualcomm FastConnect and Qualcomm Crypto Engine Core are products of Qualcomm Technologies, Inc. and/or its subsidiaries.