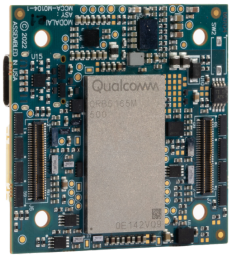
ModalAI® accelerates development of smaller, smarter and safer drones with SWAP-optimized Blue UAS Framework autopilots built in the U.S.A.

From home and business security to retail and government applications, our highly-integrated AI-powered autopilots empower a variety of industries to utilize aerial and ground autonomous navigations systems. We offer plug-and-play computing platforms, integrated autopilots and accessories to accelerate our customers toward autonomy.

VOXL® 2 Mini Product Brief

Enable the smallest drones with VOXL 2 Mini. This SWaP-optimized autopilot stack evolves VOXL 2 into an even smaller form factor. Harnessing the Qualcomm Flight RB5 architecture, VOXL 2 Mini combines a premium-tier companion computer and flight controller into a 42mm x 42mm, SWaP-optimized PCB stack that is easy to mount onto any autonomy deficient drone or robot.



Autonomy

Smaller, smarter processing power than ever before

- 42mm x 42mm SWaP-optimized for GPS-denied Navigation, Obstacle Avoidance
- Powered by Qualcomm QRB5165: 8 cores up to 3.091GHz, 8GB LPDDR5
- Abundance of perception capabilities including four MIPI image sensor inputs which can include up to five image sensors, including 8K30 and PMD ToF
- 5.8g VOXL Mini ESC with integrated power management system and high-efficiency, closed-loop RPM control with feedback
- Pre-integrated thermal payloads FLIR Lepton® and Boson®
- Open-source software: Open CV, ROS2, Docker, PX4 integrated flight controller
- Integrated flight controller on DSP with TDK® ICM-42688 IMU and ICP-10111 Barometer

Artificial Intelligence

Innovative AI that accelerates autonomy in any robotic vehicle

- The QRB5165's Qualcomm AI Engine pushes 15 TOPS of AI performance with industry leading power consumption
- Onboard QRB5165: Hexagon Tensor Accelerator, GPU, DSP, NPU
- Perception models such as object segmentation and depth from mono
- NPU and GPU-accelerated TensorFlow Lite

Interoperability

Easy to mount autonomy stack

- SWAP-optimized autonomous autopilot stack with industry standard 30.5mm x 30.5mm frame mounting
- Pre-integrated compatibility with Blue UAS Framework image sensors, radios, and connectors

VOXL® 2 Mini

For full documentation of VOXL 2 Mini, visit:
docs.modalai.com/voxl2-mini

USB 3.1 Communication Options

Doodle Labs | Microhard | 4G / 5G | Wi-Fi

J3

VOXL 2 Mini

Ubuntu-Based OS (4.19 Kernel)

OpenCV	ROS 1/2	Docker
Visual Inertial Odometry (VIO)	Hexagon cDSP + NPU (15 TOPS)	VOXL SDK
Visual Obstacle Avoidance (VOA)	Adreno 650 GPU (587 MHz)	Mavlink Routing

uORB

Hexagon sDSP (800 MHz)
PX4 Autopilot - Qurt RTOS

UART R/C | I2C + UART Mag + GPS | UART ESC | 1S (3.4-4.2V) Power Input

Qualcomm® QRB5165

J19 | J1

VOXL ESC Mini + Power Management Block

4-in-1 Closed Loop RPM | 5V / 6A BEC

GCS

VOXL Portal
QGroundControl
ROS / RVIZ
ATAK / QGC GOV

USB-C Connector

J9 — USB

Client Mode
ADB
OTG (Host Mode)

External UART & SPI Port

J10 — SPI

Connect Accessories
FLIR Lepton

MIPI Cameras

J6 — CV Tracking Camera

J7 — PMD Time of Flight
J7 — Hi-Res 4K Camera