LATTICE SEMICONDUCTOR
The Low Power Programmable Leader

Low Power, Deterministic Solutions for UAVs

Vision

Vision & Sensor Fusion

Real-time Awareness: Aggregate feeds from cameras, LIDAR, Radar and thermal sensors with deterministic latency

Parallel Processing: Handles multi-sensor data at the source

Offload Compute: Frees up main CPU/ GPU, lowers total system power

Instant Awareness: Real-time object detection and mapping

Propulsion & Control

Efficient Motor Control

Sensor-less Field-Oriented Motor Control: Streamlined control for smoother torque and faster throttle response
Supports sliding mode observer, flux weakening, and sliding mode control

100X faster: Updates motor drives significantly faster than CPUs

High Reliability: No Hall sensors required

Autonomy

Visual SLAM Acceleration

Efficient navigation: Hardware acceleration for algorithms like ORB (Oriented FAST and Rotated Brief)

Operate in contested environments: Real-time landmark tracking

Edge AI: On-the-fly object recognition and tracking

Low Latency: Deterministic processing

Secure Communications

Software Defined Radio

Secure, agile communication link: Implement baseband DSP, encryption, and protocol bridging in a small, low power FPGA

Integrated connectivity: Adapt to any hardware, any CPU with flexible parallel interfaces and multi-rate, multi-protocol transceivers

Adaptive signal processing: Utilize industry-standard simulation and hardware in the loop to optimize algorithms and partition design

Why Lattice for Next-Gen UAVs?

Lattice Semiconductor specializes in **small, power-efficient FPGAs** that thrive in contested aerospace and defense applications.

Faster Time-to-Market: Lattice provides a rich set of IP cores, pre-validated reference designs, and easy-to-use tools to jump-start development for sensor bridging and motor FOC to the sensAI stack for AI/ML