SAMPLEBEAST SPECS

POWERED BY radenso labs

SAMPLEBEAST: Modular, Low SWAP-C Sensor Command

Radenso Labs has developed a modular, edge-AI native, and low SWAP-C sensor fusion platform that is **customizable and reconfigurable based on mission profiles and the needs of the warfighter**. Samplebeast was engineered with spectrum dominance in mind, and leverages modular RF payloads and a universal compute/sensing stack powered by FPGA acceleration to understand, record and deliver effects across the spectrum.

CAPABILITIES

- **Detection:** depending on the inserted card, can perform detection in any frequency range of interest across the spectrum
- **Signal Classification:** beyond identifying the presence of a signal, can specify brand/make/model, energy type (digital video, GSM, etc), and does not rely on a library for flagging threats.
- **Autonomous Detection & Tracking:** Set-and-forget spectral monitoring /signal logging, rich feature extraction & export
- **Decoy:** Transmit sample-accurate waveforms at scale
- **Reconfiguration:** Rapid OTA deployment of new threat profiles and mission parameters
- **Logging:** High-rate IQ capture to NVME

SIZE, WEIGHT & POWER (SWaP)

- Dimensions: 244 × 232 × 56 mm
- Weight: 4 lbs
- Power Draw: 5–15 W typical / 30 W max
- Power Input: USB-C PD compliant; 12 V DC

I/O & PERIPHERALS

- 2× USB 3.0 Type-C
- NVMe (PCI-E), SDIO, GPIO, MIPI
- WiFi (2.4/5.8 GHz), Bluetooth, GPS, accelerometer
- Rapid customization available for addl options

COMPUTE

- Xilinx Ultrascale ZU5EV MPSoC+
- 4× 1.5 GHz ARM A53 cores
- 2× 600 MHz R5 real-time cores
- ARM Mali 400 MP2 GPU
- 256k logic cells
- 1,248 DSP slices
- 16 Gbit DDR4
- 256 Gbit eMMC storage

PERFORMANCE

- Frequency Coverage: fully customizable based on mission needs
- Channels: 2 TX & 2 RX, Half or Full Duplex
- MIMO: Fully-coherent 2×2 MIMO capability
- Bandwidth: Up to 1.4 GHz instantaneous bandwidth
- ADC: 12-bit resolution

INTEGRATION & DATA OUTPUTS

- Lattice, TAK, and other requested systems
- Standards-friendly exports
- OTA updates

FIELD PROVEN & READY TO SCALE

- **Operational Where the Mission Leads:** Form factor can be rack-mounted, vehicle-mounted, installed at a fixed location like a forward-operating base, or used as a desktop tool.
- **Trusted by Defense & Security Operators:** Leverages Radenso Lab's proven signal-processing IP for wide threat coverage, including drones without Remote ID.
- **Empowers Distributed Ops:** Supports distributed, expendable deployments where attritable systems at scale are mission-enabling, including in GNSS-denied environments.
- **Continuously Evolves:** Secure OTA updates push new threats, detection rules, and mission configurations without hardware swaps.

Learn more: www.radensolabs.com