

ADVANTECH

+

AVOCADO OS

## All-in-One AI Vision from Development to Production



### Solution overview

The Advantech iCAM-540, featuring the NVIDIA Jetson Orin NX and powered by Avocado OS, delivers a production-grade smart camera platform ready to ship value in days, not months. Turnkey integration with the underlying Jetson hardware and Triton Inference Server allows application engineers to begin iterating on computer vision models from day one. This scale-ready Linux environment ensures secure, reliable deployment across fleets, with rollback protection and centralized control built in.

Together, Advantech and Peridio provide a complete, programmable foundation for industrial-grade vision systems that can move seamlessly from lab to large-scale field operations.

### ICAM 540 hardware highlights

AI Processor	NVIDIA Jetson Orin NX	100 TOPS for multi-model concurrent inference
Camera Sensor	Sony IMX334 8MP CMOS	Industrial-grade sensor with exceptional low-light performance
Frame Rate	45 fps at full resolution	Real-time processing for high-speed inspection
Lens Mount	C-Mount Compatible	Wide selection of industrial optics available
SDK Support	CAMNavi + DeepStream	Python-based development with NVIDIA optimization
Operating Temp	-20°C to +60°C	Reliable operation in industrial environments

# How Advantech iCAM 540 & Avocado OS empower Jetson Orin Nano

**Turnkey BSP** – Boot a secure, deterministic image in minutes; hardware-in-the-loop tools significantly reduce iteration time.

**Developer tooling** – Containerized SDKs featuring hot reload and ROS2 integration.

**Long-term support** – 10-year kernel and CVE maintenance.

**Unified security** – Secure boot, dm-verity, LUKS, and reproducible builds.

**Fleet & OTA** – Cohort-based rollouts, comprehensive metrics, and instant rollback.

## Business impact

### ✓ Production-Ready from Day 1

Pre-hardened Linux OS with CAMNavi SDK, DeepStream, and TensorRT pre-integrated. No prototype-to-production gap.

### 🏗️ Cross-platform reuse

Develop on ICAM-540 with Orin NX, deploy across NVIDIA Jetson platforms.

### 🔗 Atomic AI Model Updates

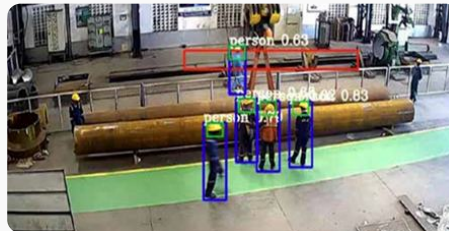
Zero-downtime model deployment with automatic rollback on performance degradation.

## Use-case examples



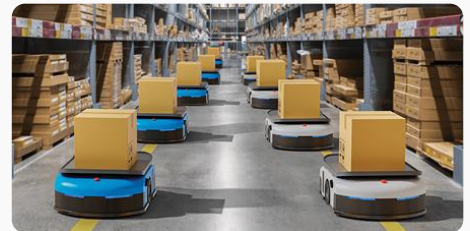
### Automated Optical Inspection (AOI)

Deploy 100 TOPS of AI performance for real-time defect detection on high-speed production lines. Process multiple inspection models simultaneously with sub-10ms latency.



### Industrial Safety & Compliance

Monitor PPE compliance, detect safety violations, and track worker movement patterns. Edge processing ensures privacy compliance without cloud data transmission.



### Smart Factory Analytics

Real-time production monitoring with on-device inference for quality metrics, throughput optimization, and predictive maintenance triggers.

## Next steps

Transform your Advantech ICAM-540 cameras into a managed vision fleet with atomic updates, remote diagnostics, and enterprise support.

