

## Redefining Edge AI Development: KNEO Pi Unlocks the Future of Smart Hardware

SAN DIEGO, CA, UNITED STATES, June 3, 2025 /EINPresswire.com/ -- As the world becomes increasingly interconnected and AI continues to democratize, edge computing is rapidly emerging as the frontier of innovation. Traditional development boards often fall short—limited by computing power, high energy consumption, and closed ecosystems—making them inadequate for real-time AI inference or industrial-grade deployment.

Enter KNEO Pi—Kneron's new highperformance development platform, designed to transform what's possible



at the edge. Built with a dedicated NPU, open software ecosystem, and industrial-grade reliability, KNEO Pi is redefining what intelligent hardware can do.

Whether you're a maker looking to test your next AI idea or an enterprise developer needing scalable, deployable solutions, KNEO Pi is built to empower you.

Three Core Innovations Behind KNEO Pi

1. Native AI Power: Unleashing the "Brain" of Edge Devices

KNEO Pi is powered by Kneron's proprietary KDP-series Neural Processing Unit (NPU), offering up to 4 eTOPS of INT8 performance. Compared to CPU/GPU-based boards like Raspberry Pi, Kneron's NPU delivers:

- 10x power efficiency: Processes camera data and runs YOLOv5 for object detection with just 2W of power at over 30 FPS (Raspberry Pi CPU mode achieves only 2–3 FPS).

- Parallel multitasking: Supports simultaneous processing of up to four camera streams (e.g., facial recognition, vehicle detection, behavior analysis).

- Zero-latency inference: Processes locally without needing cloud connectivity—ideal for realtime decision-making in security, healthcare, and more.

2. Plug-and-Play Developer Experience

KNEO Pi eliminates the headaches of hardware and software compatibility:

- Onboard storage with SD card support

- 40-pin GPIO fully compatible with Raspberry Pi sensors and displays

- Pre-installed KNEO Pi OS based on optimized ArchLinux ARM, including NPU drivers, media codec libraries, and AI model libraries—ready for deployment in minutes

3. Industrial-Grade Reliability

Seamless scaling from prototype to production

- Wide temperature support (-20°C to 70°C): Withstands outdoor heat monitoring, cold-chain logistics, and extreme environments

- EMC protection: Certified electromagnetic shielding minimizes signal interference in automated industrial settings

Three Use Cases: The Limitless Potential of KNEO Pi

1. Smart Securities & Cities

Develop AI-powered access systems with localized facial recognition and liveness detection. Direct camera connection ensures sub-0.3 second verification even without internet, with NPUpowered multi-model processing and enhanced low-light imaging—all while safeguarding user data.

2. Industrial Inspection & Predictive Maintenance

Manufacturers can deploy vision-based inspection stations using KNEO Pi to analyze production line defects in real time with 99.2% accuracy. Features include rugged industrial protection and one-click model migration for fast rollout.

## 3. Education & Maker Projects

Compatible with Python/C++ and supported by open-source project templates and Kneron's official AI tools, KNEO Pi is perfect for student developers. Run real-time semantic segmentation and bring AI education to life in high schools and universities.

Why Developers Choose KNEO Pi

- Open Ecosystem: Freedom to modify and commercialize

- Enterprise-Grade Support: 48-hour tech response, SDK customization, and bulk purchasing

available

- Cost Advantage: Lower price than Raspberry Pi + external AI accelerator combo, enabling faster deployment cycles

Kneron has long been committed to pioneering edge AI. With KNEO Pi, we aim to bring intelligence to every device—building the foundational infrastructure for a smarter world.

Discover more and experience KNEO Pi for yourself at <u>https://kneron.github.io/kneopi-documentation/index.html</u>

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