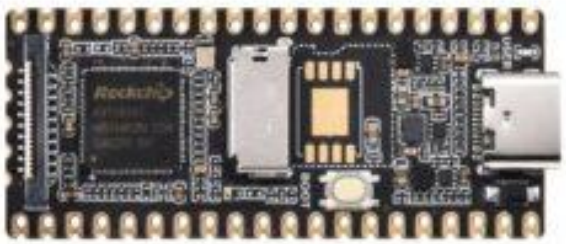
Luckfox Pico RV1103 Linux Micro Development Board – ARM Cortex-A7 / RISC-V / NPU / ISP

The **Luckfox Pico RV1103 Linux Micro Development Board** is a compact, high-performance embedded platform designed for developers, hobbyists, and engineers who need an efficient solution for AI vision, IoT, and intelligent control projects. Built around the **Rockchip RV1103 SoC**, this board integrates a **powerful ARM Cortex-A7 CPU**, a **RISC-V MCU**, a **dedicated NPU**, and an **ISP (Image Signal Processor)**—offering a unique combination of performance, flexibility, and low-power operation.

Powerful and Efficient Processor Architecture

At the heart of the Luckfox Pico RV1103 lies the **Rockchip RV1103**, a highly integrated processor that combines an **ARM Cortex-A7 core** running up to **1.2GHz** and a **RISC-V MCU**. This dual-core architecture allows developers to run Linux applications on the ARM core while using the RISC-V MCU for real-time control or low-power operations. The combination ensures both high performance and energy efficiency, making it perfect for embedded AI, robotics, and automation systems.



Integrated NPU for AI and Machine Vision

The built-in **Neural Processing Unit (NPU)** offers up to **0.5 TOPS** of AI computing power, enabling fast and efficient inference for neural networks and AI models. Whether you're working on object detection, facial recognition, image classification, or smart home automation, the NPU accelerates AI workloads directly on the device—eliminating the need for external cloud processing and significantly reducing latency.

High-Quality Image Processing with ISP

The **ISP (Image Signal Processor)** integrated into the RV1103 SoC supports high-definition cameras, ensuring excellent image capture and real-time processing performance. Developers can easily connect camera modules for AI vision applications such as surveillance systems, face detection, or machine vision projects. The ISP ensures accurate color reproduction, noise reduction, and superior image clarity in all lighting conditions.

Compact Design with Linux Support

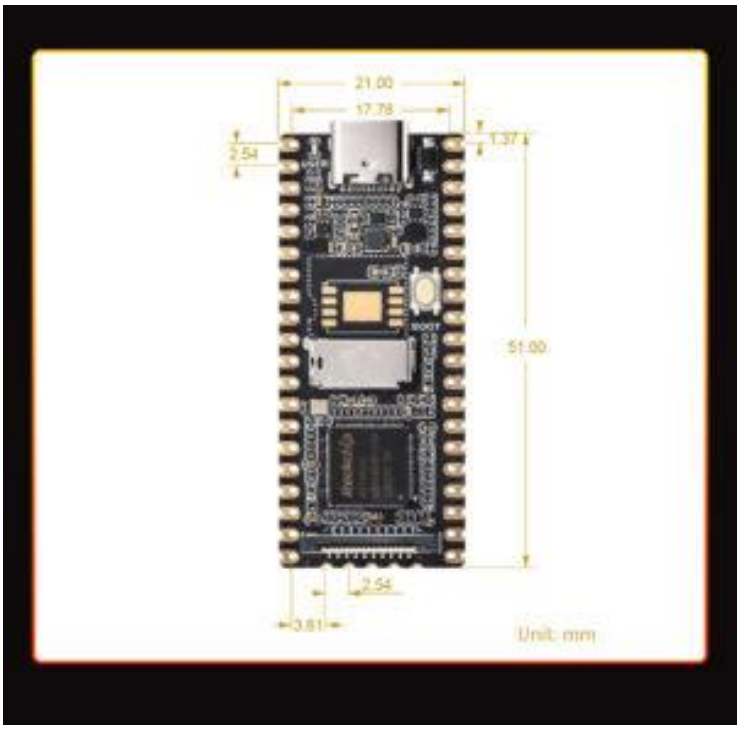
Despite its small size, the **Luckfox Pico RV1103** is a fully capable Linux development board. It runs a lightweight **Linux operating system**, offering a familiar development environment for C/C++, Python, and AI frameworks. This makes it ideal for building advanced embedded systems, IoT devices, and AI edge computing solutions without requiring a bulky setup.

The compact design allows it to fit easily into tight enclosures or portable devices, making it a great choice for prototyping and final production alike.

Connectivity and Expandability

The Luckfox Pico RV1103 board provides multiple **I/O interfaces** and **expansion options** to connect sensors, cameras, displays, and peripherals. Typical interfaces include **USB, GPIO, UART, I2C, SPI, PWM**, and **camera interfaces**, giving developers maximum flexibility to integrate the board into various projects.

It also supports **Ethernet and Wi-Fi connectivity** (depending on the version), ensuring seamless communication with cloud platforms, local servers, or other devices in IoT networks.



Ideal for a Wide Range of Applications

Thanks to its powerful architecture and flexible design, the **Luckfox Pico RV1103** is suitable for a broad spectrum of applications, including:

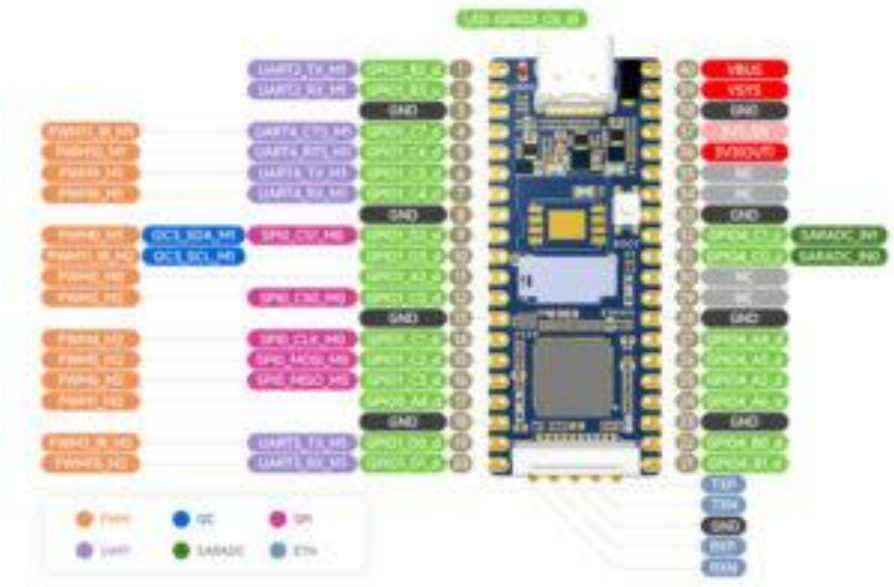
- **AI and Machine Vision Systems**
- **Smart Home and IoT Gateways**
- **Edge Computing Devices**
- **Industrial Automation and Robotics**
- **Smart Cameras and Surveillance Systems**
- **Education and Research Projects**

Whether you're an embedded engineer developing commercial products or a student learning about AI edge computing, the Luckfox Pico RV1103 offers a stable and scalable solution.

Developer-Friendly Environment

The board supports popular **development frameworks** and **AI toolchains**, making it easy to deploy machine learning models trained with TensorFlow, ONNX, or PyTorch. With full **Linux SDK support**, documentation, and community resources, developers can quickly build and test prototypes or integrate the board into existing systems.

Its open and flexible software ecosystem ensures you can easily port applications, access GPIOs, or customize firmware as needed.



Why Choose the Luckfox Pico RV1103

- Compact yet powerful embedded Linux platform
- Dual architecture: ARM Cortex-A7 + RISC-V MCU
- Integrated NPU for AI acceleration (up to 0.5 TOPS)
- Built-in ISP for advanced camera support
- Supports multiple interfaces for versatile integration
- Low power consumption and high reliability
- Ideal for AI, robotics, and IoT edge applications

Conclusion

The **Luckfox Pico RV1103 Linux Micro Development Board** combines computing power, AI capability, and versatility in a compact form factor. With its powerful ARM + RISC-V architecture, built-in NPU, and camera-ready ISP, it is the perfect choice for next-generation smart devices and AI edge applications. Whether used for prototyping or final production, it delivers exceptional performance, efficiency, and flexibility for modern embedded development.