

ONEKIWI Edge Vision AI Super-computer

The Most Power Efficiency Edge AI Super-computer

Transform Embedded Edge AI Concepts Into Reality

The OneKiwi Secure RZ/V2H SOM—a compact, production-ready compute module purpose-built for vision-first edge AI. Powered by Renesas RZ/V2H with a quad Arm® Cortex®-A55 up to 1.8 GHz, plus Cortex-M33 and dual Cortex-R8, it pairs the DRP-AI3 accelerator with a 4K encoder/decoder, ISP, VPU, and GPU to run real-time analytics with excellent power efficiency. It natively supports up to four cameras via 4× 4-lane MIPI CSI-2 for rich multi-sensor pipelines, while on-module 8 GB LPDDR4X and 64 GB eMMC deliver fast, reliable memory and storage. Security is built in with a discrete TPM 2.0 and a PUF-based SHA-3 coprocessor for trusted boot and protected data paths. With Yocto Linux and Ubuntu 24.04 support, the OneKiwi RZ/V2H SOM accelerates time-to-market for service robots, smart security cameras, industrial drones, streaming gateways, and IoT edge systems.

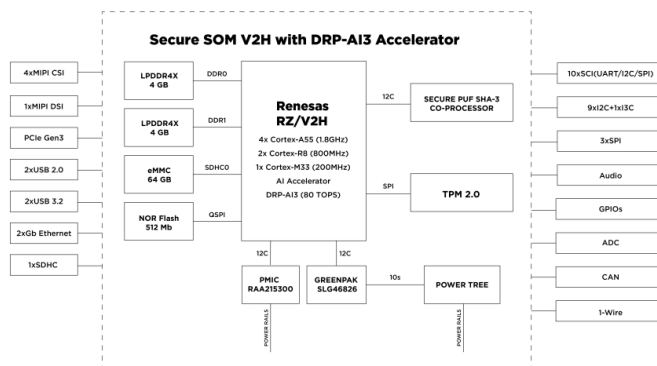


Figure 1. OneKiwi SOM RZ/V2H Block Diagram

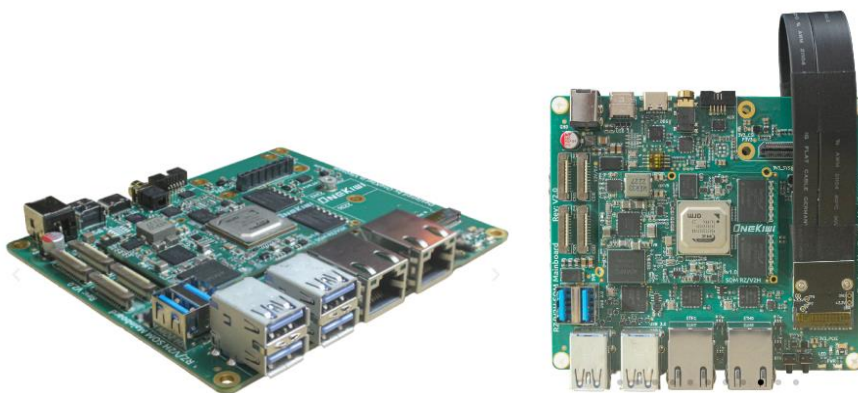


Figure 2. Vision AI Box & Super-Computer Device



Key Features

Module

- > The latest RENESAS RZ/V2H MPU equipped DRP-AI3 up to **80 TOPS** (Sparse) as high-speed AI inference processing and excellent power efficiency
- > 4-core Arm® Cortex-A55@1.8GHz 64-bit CPU, Cortex-M33 and Cortex-R8
- > 8GB LPDDR4X, 64GB eMMC
- > TPM 2.0 & External Security Co-processor
- > Support for external NVMe

Peripheral & Conectivities

- > 4x MIPI CSI-2 camera connectors
- > 1x M.2 NVMe x4 Lanes
- > 1x M.2 PCIe Endpoint (Share with M.2 NVME) in AI Bridge Mode
- > 4x USB 3.0 Type-A
- > 1x USB 3.2 Type-C
- > 2x USB 2.0 Port (On board only)
- > 2x Gigabit Ethernet
- > 1x Display Adapter Connector (support HDMI, eDP)
- > 1x Audio Jack (3.5mm)
- > 1x External Header (CAN, UART)
- > 2x CAN Bus
- > 2x UART Header
- > DC power jack (5 VDC)

Operation System

- > Yocto Linux (Default)
- > Debian 13 (On Request)
- > Ubuntu 24.04 (Dec, 2025)

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Technical Specifications

OneKiwi RZ/V2H SOM (System on Module)

AI Performance	Max 80 TOPS TOPS – 160 TOPS in AI Bridge Mode (over PCIe x4) Measured in sparse mode (inference time varies with AI Model)
AI Accelerator Engine	RENESAS DRP-AI3 architecture with 4K MAC & DRP core (offload AI pre-processing/post processing)
CPU	4-core Arm® Cortex®-A55 64-bit CPU 1.8GHz 2-core Arm® Cortex®-R8 CPU 800 MHz 1-core Arm® Cortex®-M33 CPU 200 MHz
Memory	Dual Slot LPDDR4X – Total 8GB (default) , support max 16GB (on-request)
Security	Built-in TPM 2.0 Built-in ADI ChipDNA DS2477
Video Encode /Decode	H.264/264 Enc./Dec. Max 8 video channels (Supported by on chip ISP Mali-C55)
Power	10W (Standard Mode – 80 TOPS) 15W (Bridge Mode – 160 TOPS)

Reference Carrier Board

Camera	4x MIPI CSI-2 x4 lanes camera connectors
PCIe	1x M.2 NVMe x4 Lanes
Storage	1x uSDCard socket
USB	4x USB 3.0 Type-A (via USB Hub) 1x USB 3.2 Type-C 2x USB 2.0 Port
Networking	2x 1Gb Ethernet RJ-45 1x WiFi Module (Optional)
Display	1x Display Adapter Connector (External Adapter supports HDMI or eDP output)
Audio	Audio codecs 3.5mm
Other I/O	External Signal connector: UART, CAN, GPIOs EMI Filter circuit
Others Features	Secure coprocessor MAXQ1065
Power Input	5 VDC
Mechanical	104mm x 97mm x 38mm

Ready to Get Started?

Learn more at <https://onekiwi.com.vn/products/som-renesas-ai-rz-v2h/>

