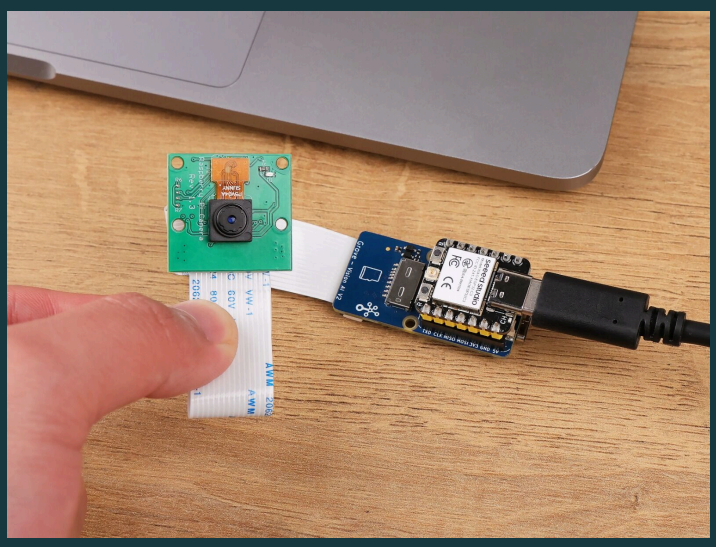
seeed studio

INDUSTRIAL PRODUCT DATASHEET

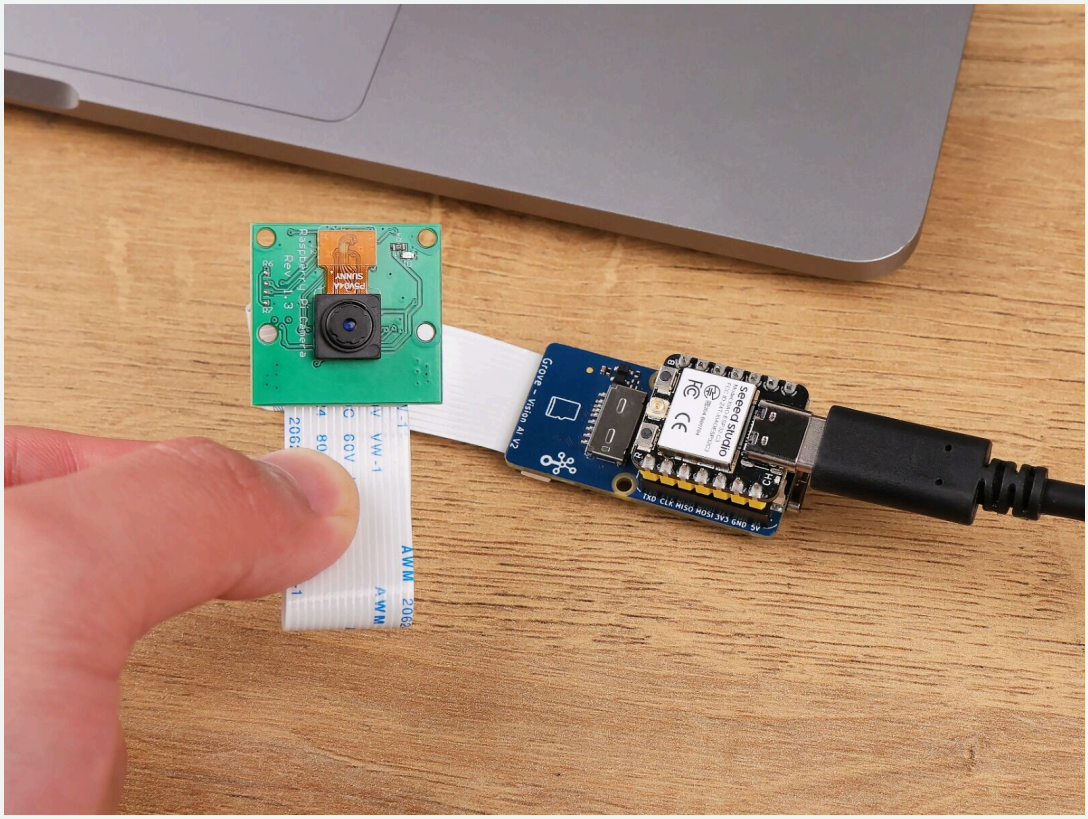
Grove Vision AI v2 Kit - with optional Raspberry Pi OV5647 Camera Module, Seeed Studio XIAO; Arm Cortex-M55 & Ethos-U55, TensorFlow and PyTorch supported

High-performance vision AI kit with Arm Cortex-M55 and Ethos-U55, supporting TensorFlow and PyTorch for industrial, smart city, and IoT applications.

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Overview



The Grove Vision AI v2 Kit features a WiseEye2 HX6538 processor with dual-core Arm Cortex-M55 and integrated Arm Ethos-U55, enabling powerful AI processing and support for TensorFlow and PyTorch models like Yolo v5 and v8. It is suitable for applications such as industrial automation, smart city, transportation, intelligent agriculture, and mobile IoT devices.

Key Features

• Powerful AI Processing Capabilities: Utilizes WiseEye2 HX6538 processor with a dual-core Arm Cortex-M55 and integrated Arm Ethos-U55 neural network unit.

• Versatile AI Model Support: Easily deploy off-the-shelf or your custom AI models from SenseCraft AI, including Mobilenet V1, V2, Efficientnet-lite, Yolo v5 & v8. TensorFlow and PyTorch frameworks are supported.

• Rich Peripheral Devices: Includes PDM microphone, SD card slot, Type-C, Grove interface, and other peripherals.

• High Compatibility: Compatible with XIAO series, Arduino, Raspberry Pi, ESP dev board, easy for further development

• Fully Open Source: All codes, design files, and schematics available for modification and use.

How's the performance of Grove Vision AI V2?

To have a quick evaluation of this board's performance, we compared it to Seeed's other MCU-based vision AI boards - **Grove Vision AI Module**, **XIAO ESP32S3 Sense** in four areas:

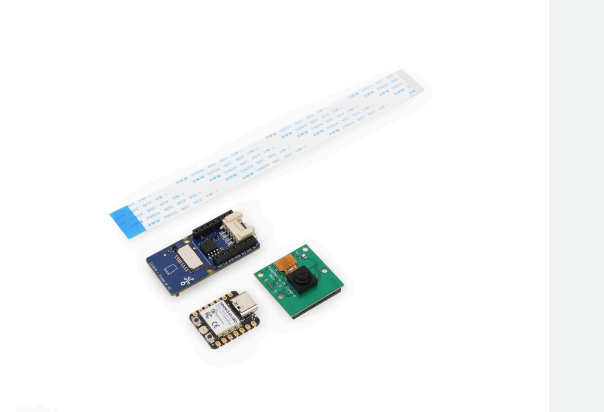
(Image Credits: Mengdu)

These results clearly demonstrate that the Grove Vision AI V2 is a premium choice for high-performance vision processing.

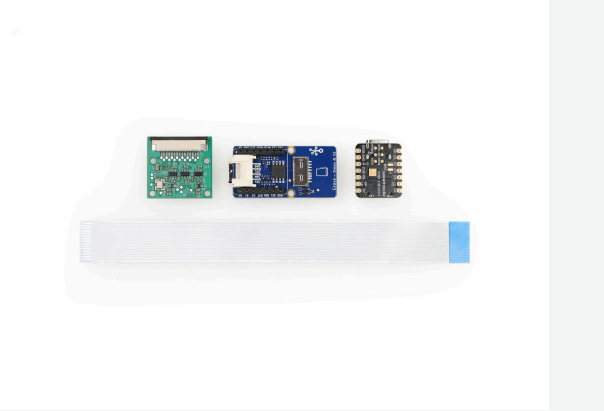
What's on the board?

Already have your own XIAO board and camera? Choose **Grove Vision AI Module V2**. Prefer a prebuilt compact AI camera? Check out **XIAO Vision AI Camera**, or explore **reCamera Basic** for a more powerful standalone AI camera.

Product Gallery







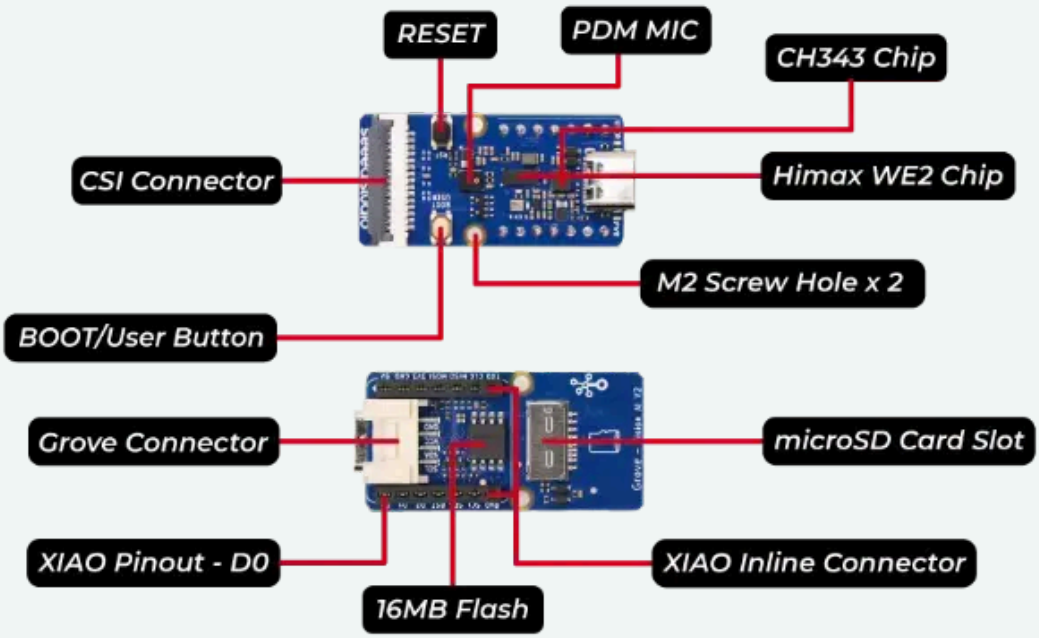


Specification

Parameters	OV5647- 62 FOV Camera module	OV5647-67 FOV IR Camera module	OV5647-160 FOV IR Camera module
Still resolution	5 Megapixels		
FOV	62	67	160
Video modes	1080p@30fps 720p@60fps		
Sensor	OV5647		
Sensor Resolution	2592 × 1944 pixels		
Pixel Size	1.4 µm x 1.4 µm		
Focal Length	3.4 mm (adjustable)	3.6 mm (adjustable)	3.15 mm (adjustable)
Focal Ratio (F-Stop)	2.8	2.0	2.35
Power Supply	3.3 V (Pin 15)		
Hardware Support	Raspberry Pi 3B / 3B+ / 4		
Operating Temp	-20°C to 70°C		
CMOS Size	1/4 inch		
Size	25 x 23 x 9mm	38 x 38 x 18.4mm (excluding lens)	25mm × 24mm ×18±0.5mm

Microcontroller	Himax WiseEye2 HX6538 processor featuring a dual-core Arm Cortex-M55 and integrated Arm Ethos-U55
Onboard Peripherals	PDM Microphone, SD Card Slot
Rich Interfaces	CSI, IIC, UART, SPI, and Type-C
Input Voltage	5V
Power Supply	dual 7-pin connector & Type-C
Rate	115200
I2C Interface	Seeed Studio XIAO & Arduino
Downloading & Firmware Burn Interface	Type-C
Frequency(ARM Cortex-M55 Processor(Big))	Up to 400MHz
Frequency(ARM Cortex-M55 Processor(Little))	Up to 150MHz
Frequency(ARM Ethos-U55 microNPU)	Up to 400MHz
Memory Card Interface	Up to 1x SD and SDIO host, support DS mode, up to 25MHz
Internal System Memory	• Configurable system memory, up to 2432KB • 64KB boot ROM

Hardware Overview



Applications

- **Industrial automation:** quality inspection, predictive maintenance, voice control, etc.
- **Smart city:** equipment monitoring, energy management, etc.
- **Transportation:** status monitoring, location tracking, etc.
- **Intelligent agriculture:** environmental monitoring, etc.
- **Mobile IoT devices:** wearable devices, handheld devices, etc.

Part List

Grove Vision AI V2	x1
Raspberry Pi OV5647 Camera Module	x1
Seeed Studio XIAO	x1

Resource Links

- https://www.seeedstudio.com/Grove-Vision-AI-V2-Kit-p-5852.html
- 3D Printed Foldable Holder for Grove Vision AI Module V2 Kit (Grove Vision AI Module V2 + OV5647 Camera + XIAO)
- HX6538 Datasheet
- Himax examples for Seeed Grove Vision AI Module V2
- Grove vision ai v2 kit case

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