seeed studio reCamera Vision AI Platform User Guide

Contents

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seeed studio camera Vision AI Platform

Specifications

- Product Name: Camera 2002
- Processor: C906@1GHz + C906@700MHz
- System: RISC-V SoC SG2002
- AL Performance: 1TOPS@Int8
- CPU: 8051@8KB SRAM
- Memory: 256MB
- Video Encode: 5MP @ 30Fps
- Camera Sensor: OV5647 (version1)
- Storage: 8GB (version2) eMMC, expandable up to 64GB with removable TF card (not included)
- I/O: Type-C(2.0), Ethernet, Wireless, USB
- Audio: On-board Mic, External Speaker
- Dimensions: 40x40x36.5mm

The Vision AI Platform for Everywhere
Camara is an open-source and tiny AI camera, programmable and customizable, powered by RISC-V SoC, delivering on-device 1 TOPS AI performance with video encoding 5MP @30 FPS. The modular hardware design and expandable
interfaces offer the most versatile platform for developers building vision AI systems.

Modular Design Overview

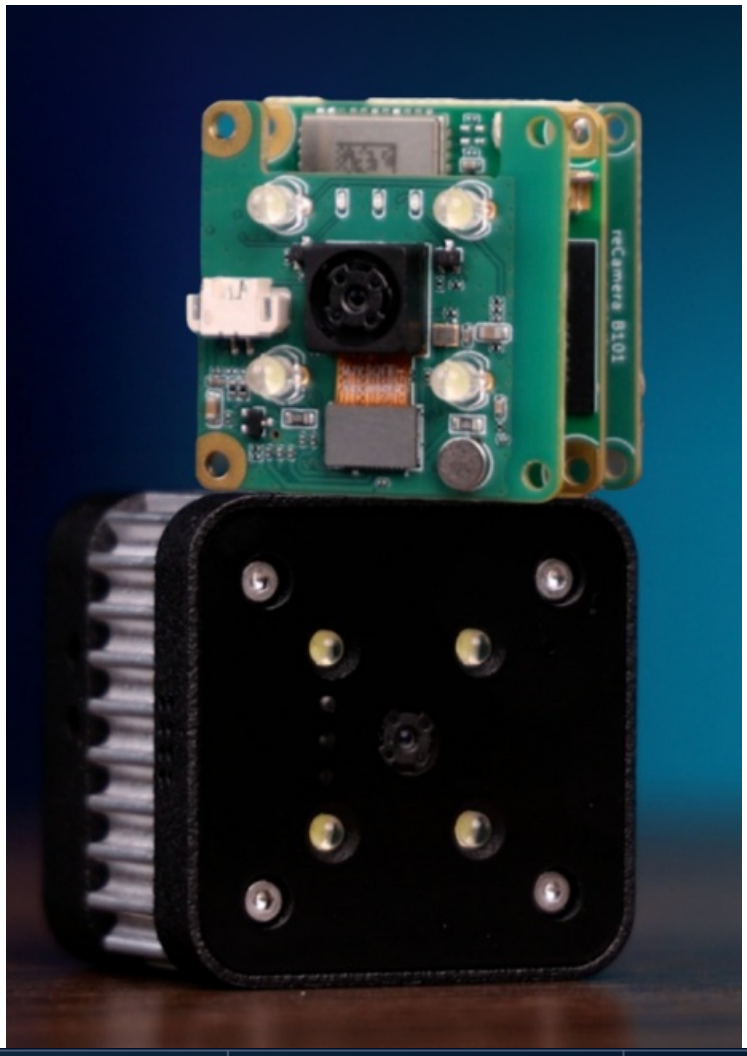
The camera system consists of different boards that can be customized based on your needs:

- Base Board: Includes Type-C, SD Card, UART, Ethernet, and expandable interfaces
- Core Board: Contains CPU, RAM, eMMC, and Wireless module
- Sensor Board: Compatible with various camera sensors like OV5647, IMX335, and more

Features

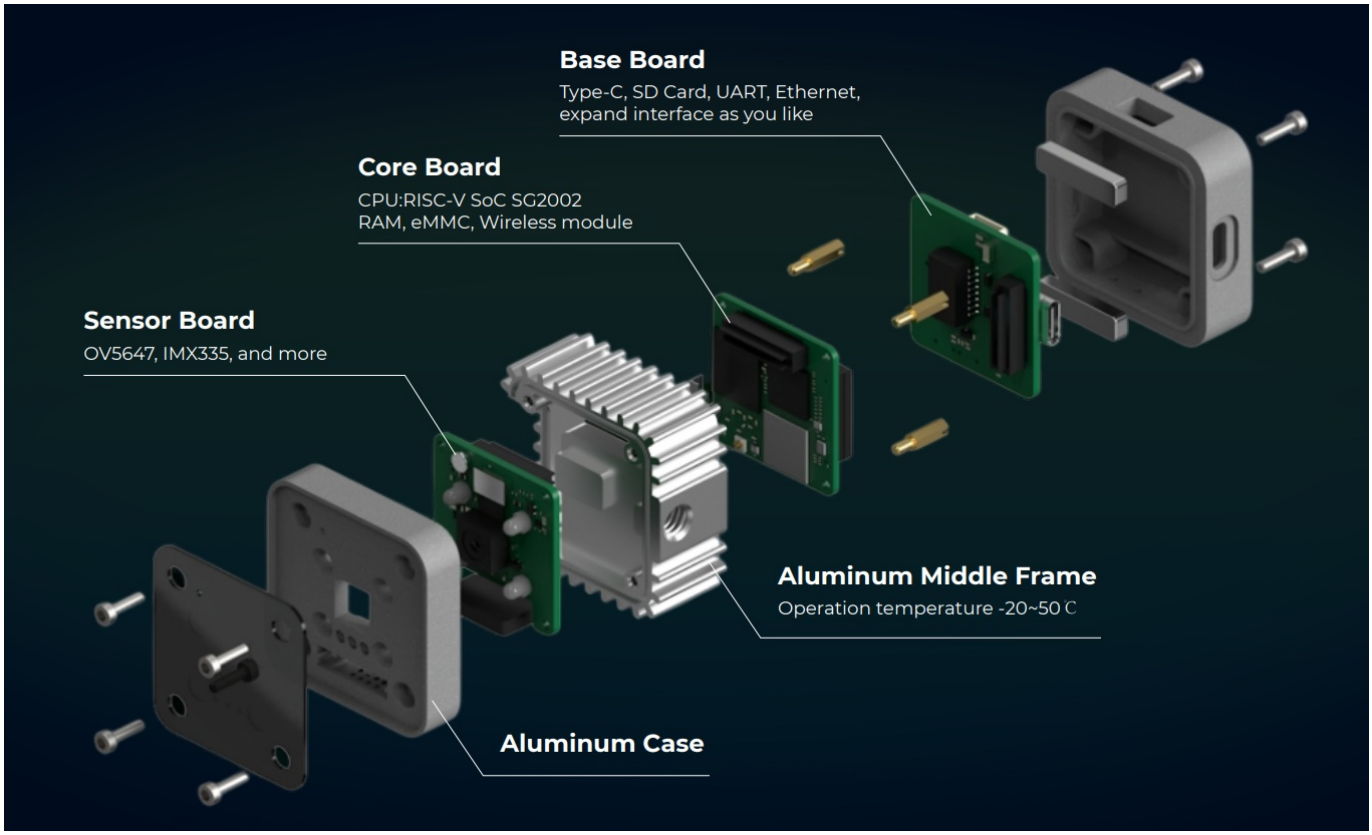
YOLO Native

With Wireless and Different RAM Options

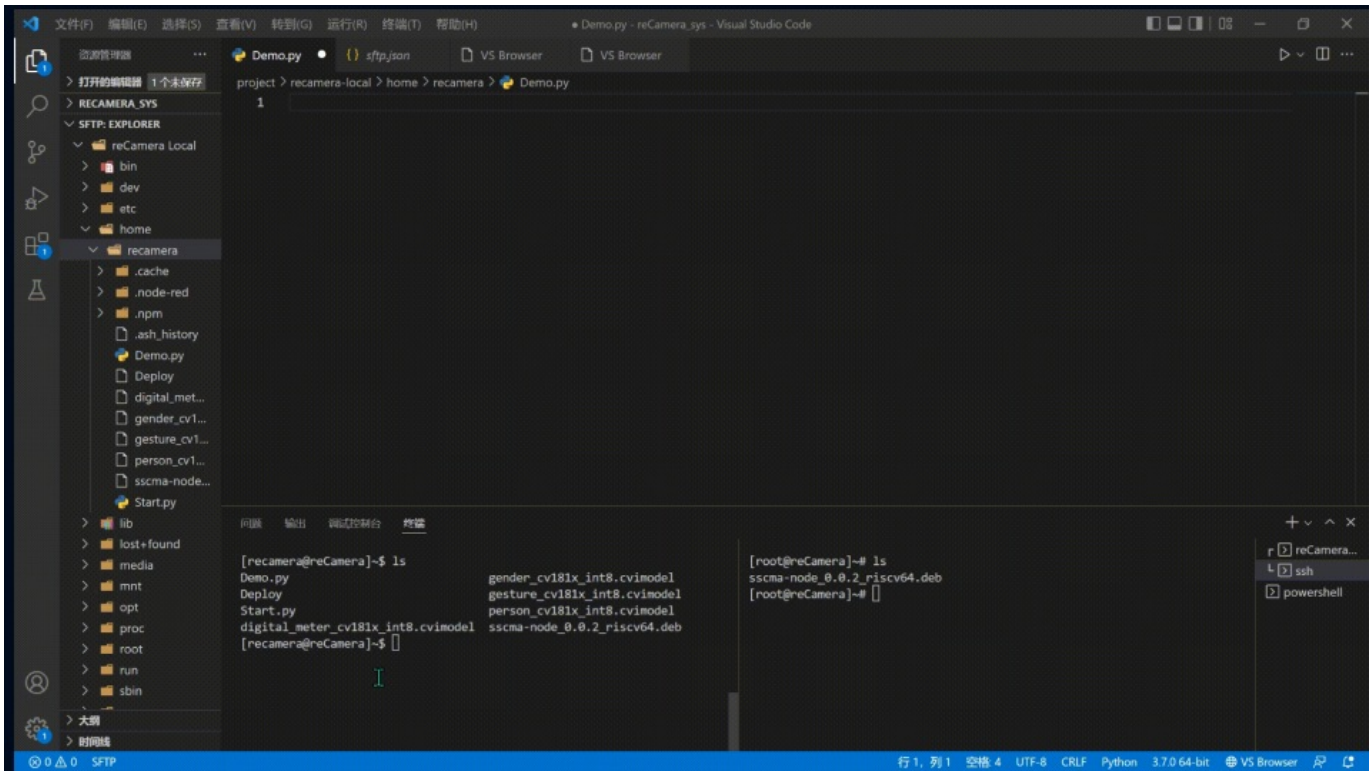


Product Name		reCamera 2002	reCamera 2002w
Processor System	AI Performance	1TOPS@Int8	
	SOC	SG2002	SG2002
	CPU	C906@1GHz + C906@700MHz	
	MCU	8051@8KB SRAM	
	Memory	256MB	
	Video Encode	5MP @ 30Fps	
Camera Sensor		OV5647	
Storage	eMMC	(version1) 8GB	(version2) 64GB
	Expansion	removable TF card (up to 2TB, not included)	
I/O	Ethernet	100Mbps	
	Wireless	/	WIFI2.4G/5G BT4.2/5.0
	USB	USB Type-C(2.0)	
	Button	1 Reset Button, 1 Boot Button	
	Fill Light	0.3w White Light	
	Status Light	1 Power Indicator, 2 IO Programmable	
Audio	Mic	On-board Mic	
	Speaker	External Speaker	
Dimension		40x40x36.5mm	

Modular Design



Smooth Software Interaction



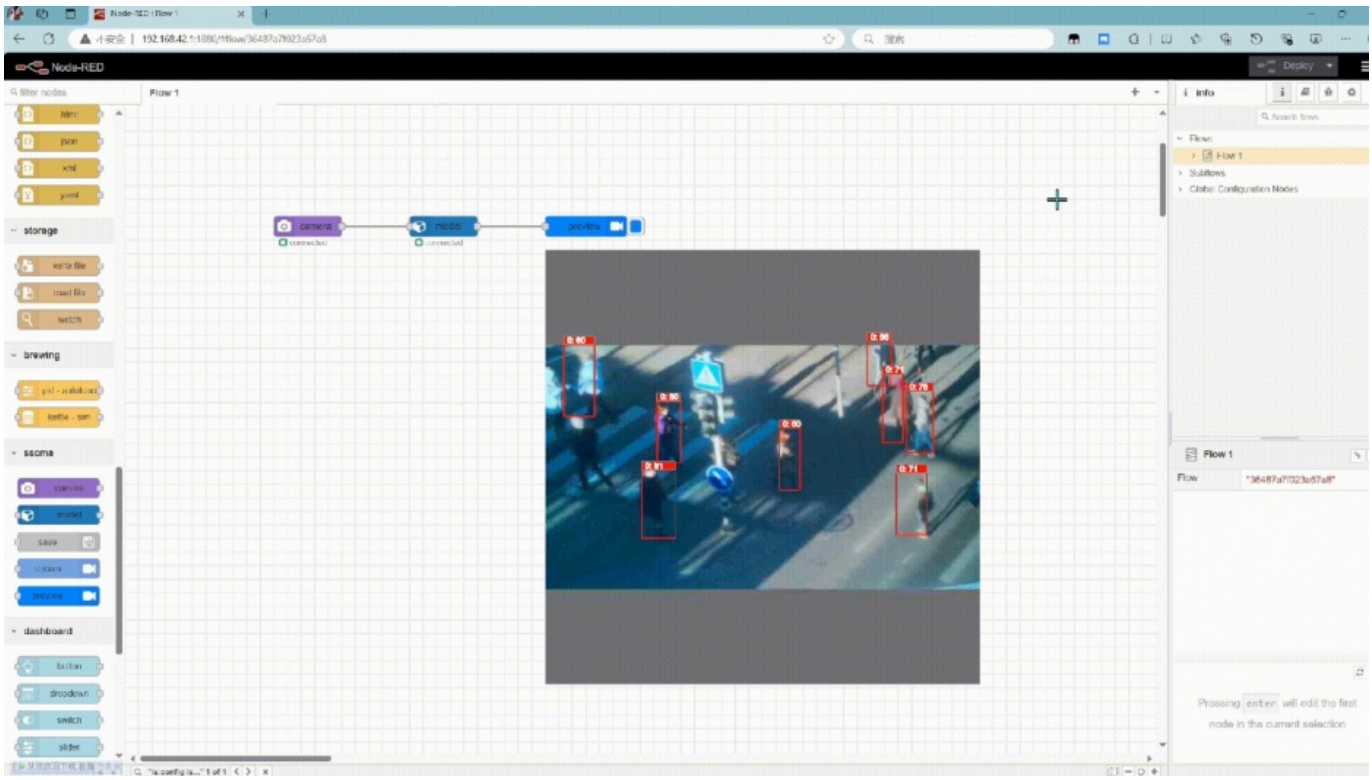
Buildroot System for Programming

A lightweight customized Linux system: Support Python and Node.js directly from the console Deploy the compiled executive file from C or Rust. Multi-threading is supported, running all tasks without worrying about the conflicts.

Node-RED Integration for No-code Workflow

Customized nodes for the camera allow you to call the camera API and use the TPU to load models directly onto

the device.



Simple steps as
Select node module Configurate node Deploy

Software Interaction

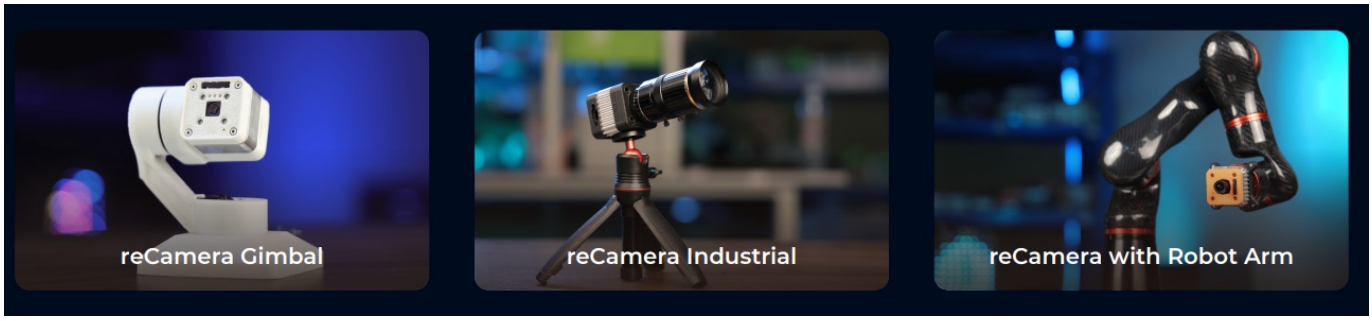
The system runs on a Buildroot Linux system and supports Python and Node.js for programming.

Follow these steps for software interaction:

1. Select the node module for the desired functionality.
2. Configure the node settings accordingly.
3. Deploy the changes to the camera device.

Node-RED Integration
Node-RED allows for a no-code workflow to interact with the camera. Customized nodes enable easy access to the camera API and TPU for loading models directly onto the device.

Deploy Camera Everywhere
Everything at seeedstudio.com/recamera



FAQs

Q: Can I expand the storage capacity of reCamera?
A: Yes, you can expand the storage capacity up to 64GB using a removable TF card (up to 2TB).

Q: What programming languages are supported?
A: The system supports Python and Node.js directly from the console for easy programming.

Q: How do I reset the device?
A: You can reset the device by pressing the Reset Button located on the camera.

Documents / Resources

	seeed studio reCamera Vision AI Platform [pdf] User Guide reCamera Vision AI Platform, Vision AI Platform, Platform

References

- reCamera
- User Manual