

## Grove AI HAT for Edge Computing

SKU 102991187

The Grove AI HAT for Edge Computing is built around Sipeed MAix M1 AI MODULE with Kendryte K210 processor inside. It's a low cost but powerful raspberry pi AI hat which assists raspberry pi run the AI at the edge, it also can work independently for edge computing applications.

The MAix M1 is a powerful RISC-V 600MHz AI module that features dual-core 64-bit CPU, 230GMULps 16-bit KPU(Neural Network Processor), FPU(Float Point Unit) supports DP&SP, and APU(Audio Processor) supports 8 mics.

In addition to the powerful Kendryte K210 processor, the Grove AI HAT for Edge Computing board provides a wealth of peripherals: I2C/UART/SPI/I2S/PWM/GPIO. The hat also offers an LCD and a camera interface, which supports the Sipeed 2.4inch QVGA LCD and DVP camera, it will be helpful and convenience with your AI vision project. Just like the [Sipeed MAix BiT Kit for RISC-V AI+IoT](#), we will release the kit with a camera and an LCD soon. For AI voice recognition applications, we add a high-quality microphone. And for robot or motion applications, there is an onboard 3-axis accelerometers sensor, which is more accurate and easy to use compared to external sensors.

We have released various of [SIPPEED AI](#) products, we believe it is time to make it Grove and bring all our hundreds of grove sensors and grove actuators to your AI applications. So here comes the Grove AI HAT for Edge Computing. We've added 6 grove connectors to this hat, including 1xDigital IO, 2xAnalog IO, 1xI2C, 1xUART, and 1xPWM. On top of that, based on [kendryte-standalone-sdk](#), we added the full [ArduinoCore-API](#) interface to support Arduino IDE, Linux, Windows, Mac OS X, and other development environments. Which means you can run Grove Arduino Libraries and many [excellent Arduino libraries](#) on this board easily.

We hope this board may help you with your edge computing, AI vision, voice recognition, and other AI project.

Sincerely thanks for yokonav, marioalemn, shunya.sato.310, ross728, hitmanarky and all the other customers who gave us advice during the development of the this hat, we've listened to their opinions and adopted some suggestions. Please advise us in [New Product Ideas](#), looking forward to your valuable comments.

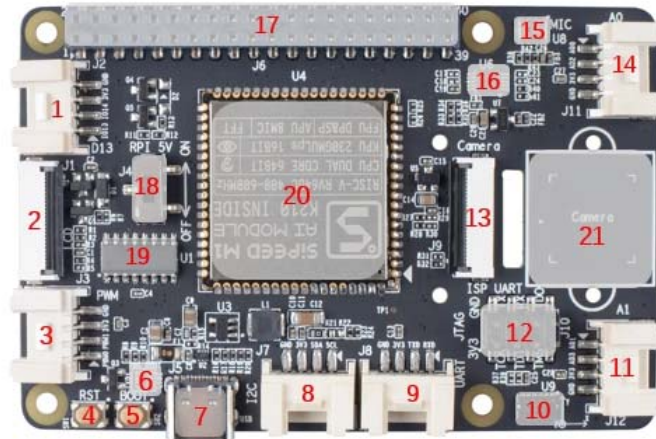
## Features

- Processor: Sipeed MAIX-I module w/o WiFi ( 1st RISC-V 64 AI Module, K210 inside )
- 1x USB 2.0 Device, Type C(Power and Programming)
- 6x Grove Interface: include 1x Digital IO, 1x PWM, 1x I2C, 1x UART, 2x ADC
- 1x Power LED, 1x Boot LED(can be used as User LED)
- 1x Reset Button, 1x Boot Button (can be used as User Button)
- 1x LCD Interface
- 1x Camera Interface
- 1x Digital Mic
- 1x Accelerometers Sensor
- 1x JTAG & ISP UART Pin Header
- 2x 20 Pin Header with I2C, UART, SPI, I2S, PWM, GPIO

## Applications

- AI for Edge Computing
- Smart Building
- Medical equipment
- Automation & Process Control
- Robot

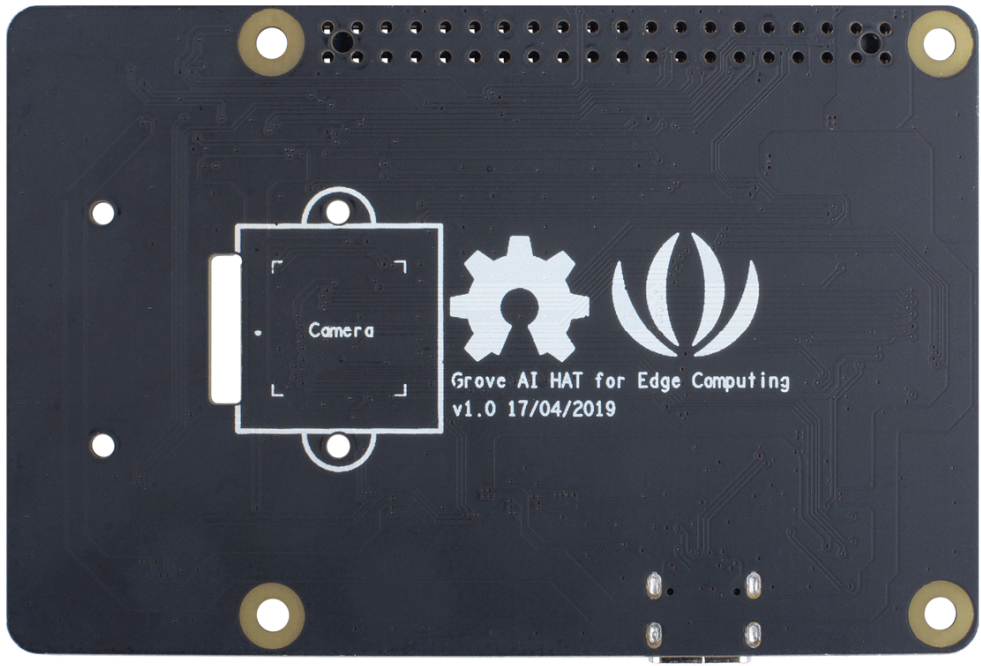
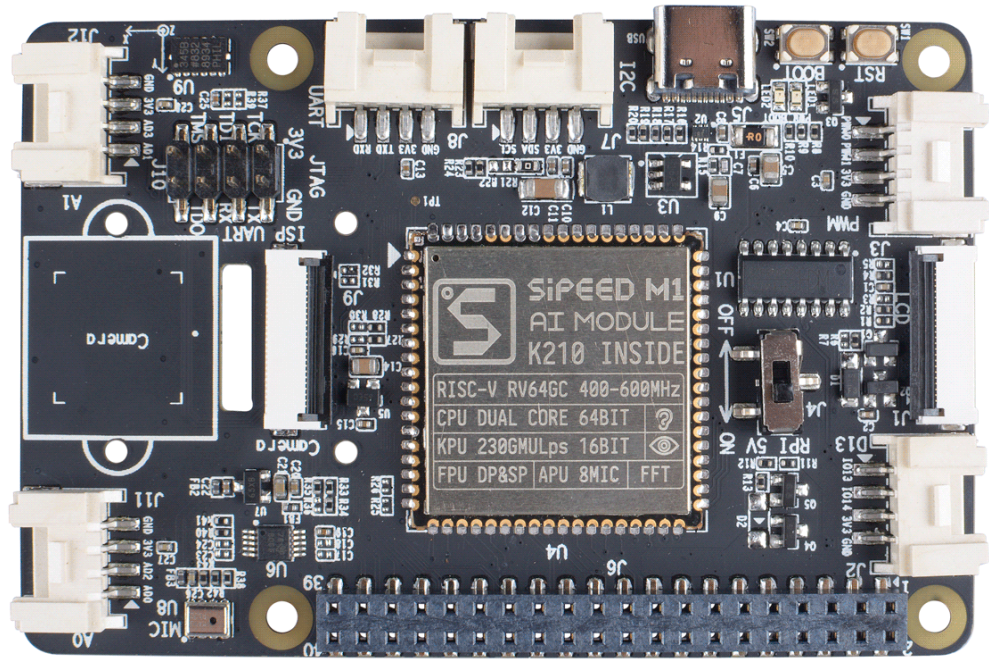
## Hardware Overview

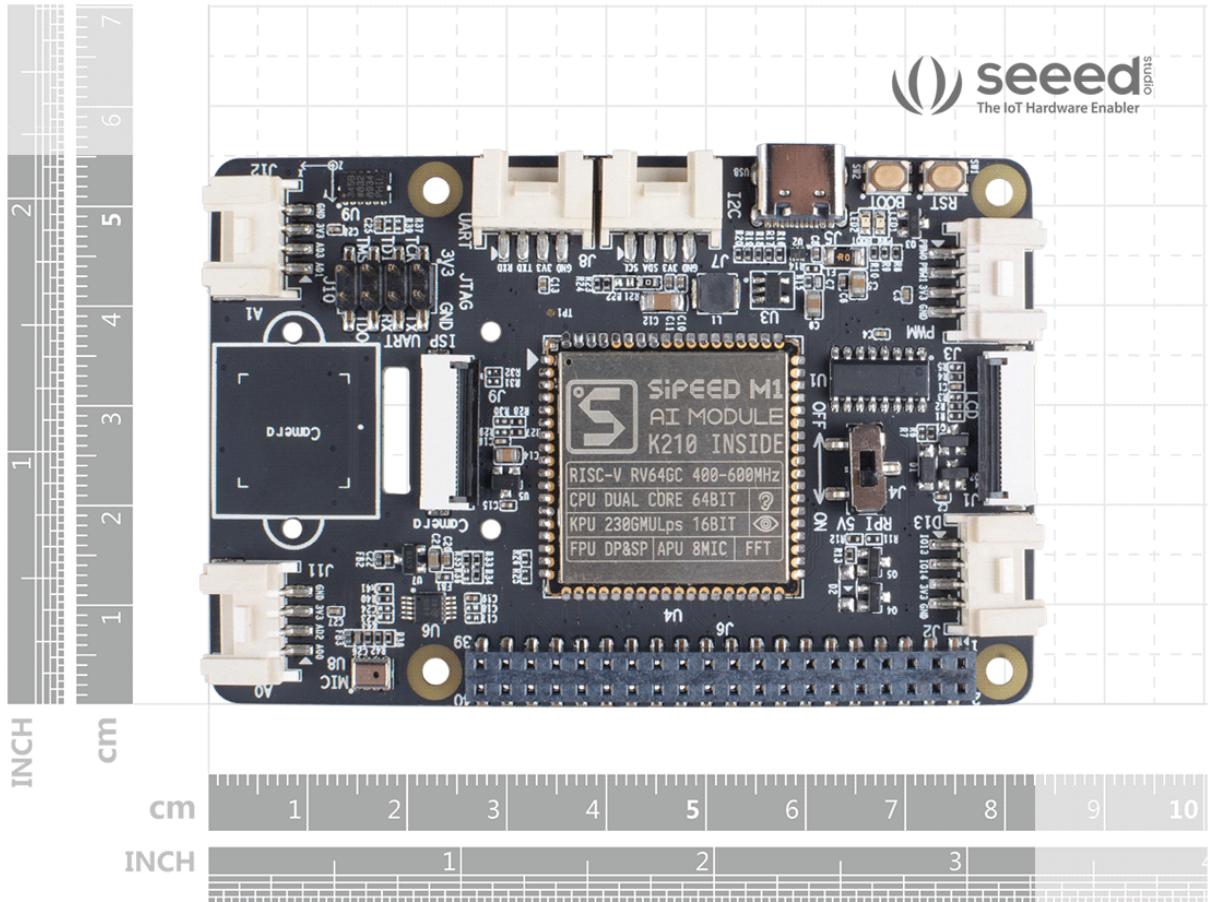


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|-------------------------------------|--|
| 1: J2 , Grove , Digital IO          | 12: J10 , 2x4 Pin Header , JTAG & ISP UART |
| 2: J1 , LCD Interface               | 13: J9 , Camera Interface                  |
| 3: J3 , Grove , PWM                 | 14: J11 , Grove , ADC A0                   |
| 4: SW1 , Reset Button               | 15: U8 , MIC                               |
| 5: SW2 , Boot Button                | 16: U6 , I2C to ADC IC                     |
| 6: LED1 , 3.3V LED; LED2 , Boot LED | 17: J6 , 2x20 Pin Socket                   |
| 7: J5 , USB Type C                  | 18: J4 , Toggle Switch for RPI 5V          |
| 8: J7 , Grove , I2C                 | 19: U1 , USB to UART IC                    |
| 9: J8 , Grove , UART                | 20: U4 , Sipeed AI Module                  |
| 10: U9 , Accelerometers Sensor      | 21: Camera mounting slot                   |
| 11: J12 , Grove , ADC A1            |  |

## ECCN/HTS

ECCN	5A002.a.1
HSCODE	8543709990
UPC	





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