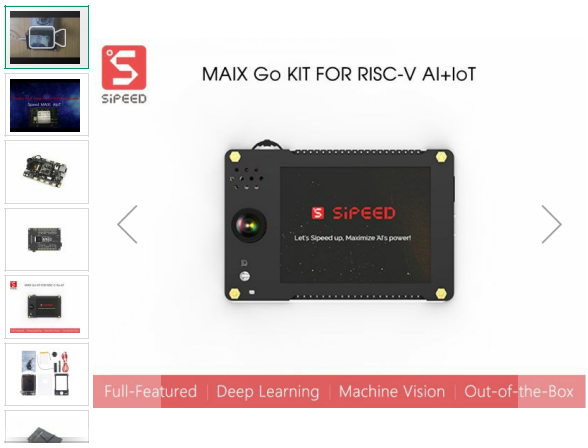


# Sipeed MAix Go Suit for RISC-V AI+IoT

SKU 110991191

Sipeed MAix Go have on board JTAG&UART based on STM32F103C8, I2S Mic, Speaker, RGB LED, Mic array connector, thumbwheel, TF card Slot and lithium battery manager chip with power path management function, all pins out, with standard M12 lens DVP camera.

- 1 + CN Warehouse

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Description | Documents | Learn | Reviews | FAQS

**Tips**

We have released the Sipeed AI forum area, where we will publish relevant resources from time to time. You are welcome to ask questions and communicate in the forum area.

## Sipeed MAix: AI at the edge

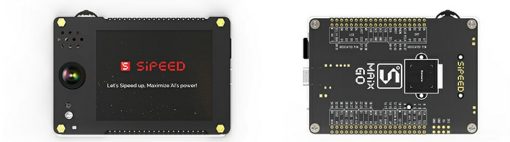
AI is pervasive today, from consumer to enterprise applications. With the explosive growth of connected devices, combined with a demand for privacy/confidentiality, low latency and bandwidth constraints, AI models trained in the cloud increasingly need to be run at the edge.

MAIX is Sipeed's purpose-built module designed to run AI at the edge, we called it AIoT. It delivers high performance in a small physical and power footprint, enabling the deployment of high-accuracy AI at the edge, and the competitive price make it possible embed to any IoT devices. As you see, Sipeed MAIX is quite like Google edge TPU, but it act as master controller, not an accelerator like edge TPU, so it is more low cost and low power than AP+edge TPU solution.

## MAix's Advantage and Usage Scenarios:

- MAIX is not only hardware, but also provide an end-to-end, hardware + software infrastructure for facilitating the deployment of customers' AI-based solutions.
- Thanks to its performance, small footprint, low power, and low cost, MAIX enables the broad deployment of high-quality AI at the edge.
- MAIX isn't just a hardware solution, it combines custom hardware, open software, and state-of-the-art AI algorithms to provide high-quality, easy to deploy AI solutions for the edge.
- MAIX can be used for a growing number of industrial use-cases such as predictive maintenance, anomaly detection, machine vision, robotics, voice recognition, and many more. It can be used in manufacturing, on-premise, healthcare, retail, smart spaces, transportation, etc.

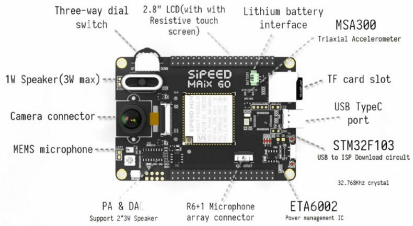
## Sipeed MAix Go development kit




MAix Go development board is bigger and better than M1 Dock.

## Features

- It is 88x60mm, all pins out, with standard M12 lens DVP camera, and the Camera can be fliped from front to rear!
- It have on board JTAG&UART based on STM32F103C8, so you can debug M1 without extra Jlink.
- It have lithium battery manager chip with power path management function, you can use the board with lithium battery and usb power without conflict~
- It have I2S Mic, Speaker, RGB LED, Mic array connector, thumbwheel, TF card Slot and so on.
- This suit include 2.8 inch LCD too, and have an simple case for it.




## Specification

| | |
|---|---|
| Master module | Sipeed M1W AIOT module |
| GPIO interface | All GPIOs connected to header 2*20 2.54mm |
| Micro SD card（TF card）slot | Support Self-elastic card holder |
| Onboard MEMS microphone | MSM261S4030H0 is an omnidirectional, Bottom-ported, I 2 S digital output MEMS Microphone. It has high performance and Reliability. |
| DVP Camera interface | 24P 0.5mm FPC connector |
| LCD interface | Maix-LCD board（with Resistive touch screen）is directly header |

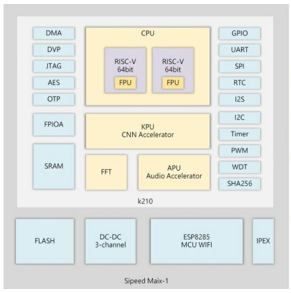
| | |
|---|---|
| RTC | Onboard 32.768k crystal connected with STM32F103 |
| Button | Three-way dial switch and one Reset push button |
| Digital Triaxial Accelerometer | · User selectable range : ±2g, ±4g, ±8g, ±16g<br>· User selectable data output rate<br>· I2C interface<br>· 14 bits resolution<br>· Low power consumption |
| Power management | ETA6002(ETA6002 is a single-cell Li-Ion switch-type charging chip with a charging current of 2.5A. It integrates dynamic path management, and the internal path of the switch has an internal resistance of only 50mohm, allowing the system to remain in the adapter without the battery) Battery path and USB path can be switched automatically |

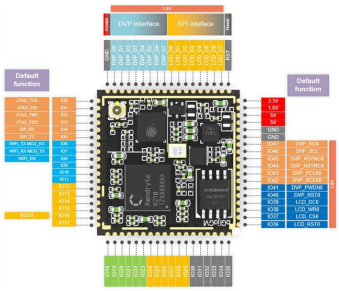
## MAix's CPU

- In hardware, MAIX have powerful KPU K210 inside, it offers many excited features:
- 1st competitive RISC-V chip, also 1st competitive AI chip, newly release in Sep. 2018
- 28nm process, dual-core RISC-V 64bit IMAFDC, on-chip huge 8MB high-speed SRAM (not for XMR :D), 400MHz frequency (able to 800MHz)
- KPU (Neural Network Processor) inside, 64 KPU which is 576bit width, support convolution kernels, any form of activation function. It offers 0.25TOPS@0.3W,400MHz, when overclock to 800MHz, it offers 0.5TOPS. It means you can do object recognition 60fps@VGA
- APU (Audio Processor) inside, support 8mics, up to 192KHz sample rate, hardcore FFT unit inside, easy to make a Mic Array (MAIX offer it too)
- Flexible FPIOA (Field Programmable IO Array), you can map 255 functions to all 48 GPIOs on the chip
- DVP camera and MCU LCD interface, you can connect an DVP camera, run your algorithm, and display on LCD
- Many other accelerators and peripherals: AES Accelerator, SHA256 Accelerator, FFT Accelerator (not APU's one), OTP, UART, WDT, IIC, SPI, I2S, TIMER, RTC, PWM, etc.

## MAix's Module

Inherit the advantage of K210's small footprint, Sipeed MAIX-I module, or called M1, integrate K210, 3-channel DC-DC power, 8MB/16MB/128MB Flash (M1w module add wifi chip esp8285 on it) into Square Inch Module. All usable IO breaks out as 1.27mm(50mil) pins, and pin's voltage is selectable from 3.3V and 1.8V.




## MAix's SoftWare

MAIX support original standalone SDK, FreeRTOS SDK base on C/C++.
And we port micropython on it: http://en.maixpy.sipeed.com/. It support FPIOA, GPIO, TIMER, PWM, Flash, OV2640, LCD, etc. And it have zmodem, vi, SPIFFS on it, you can edit python directly or sz/rz file to board. We are glad to see you contribute for it:
https://github.com/sipeed/MaixPy //Maixpy project
https://github.com/sipeed/MaixPy_Doc_Us_En_Backup //Maixpy wiki project

## MAix's Deep learning

MAIX support fixed-point model that the mainstream training framework trains, according to specific restriction rules, and have model compiler to compile models to its own model format.
It support tiny-yolo, mobilenet-v1, and, TensorFlow Lite! Many TensorFlow Lite model can be compiled and run on MAIX! And We will soon release model shop, you can trade your model on it.

| SOFTWARE FEATURES | |
|---|---|
| FreeRtos & Standard SDK | Support FreeRtos and Standrad development kit. |
| MicroPython Support | Support MicroPython on M1 |
| Machine vision | Machine vision based on convolutional neural network |
| Speech Recognition | High performance microphone array processor |
| ELECTRICAL SPEC | |
| Supply voltage of external power supply | 4.8V ~ 5.2V |
| Supply current of external power supply | >600mA |
| Temperature rise | <30K |
| Range of working temperature | -30℃ ~ 85℃ |
| RF | |
| MCU : ESP8285 | Tensilica L106 32-bit MCU |
| Wireless Standard | 802.11 b/g/n |
| Frequency Range | 2400Mhz - 2483.5Mhz |
| TX Power(Conduction test) | 802.11.b : +15dBm<br>802.11.g : +10dBm(54Mbps)<br>802.11.n : +10dBm (65Mbps) |
| Antenna Connector | IPEX 3.0x3.0mm |
| Wi-Fi mode | Station/SoftAP/SoftAP+Station |

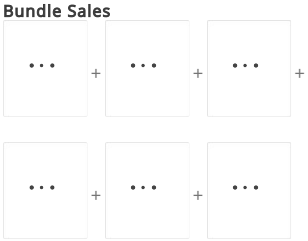
## Part List

| | |
|---|---|
| board | |
| ACRYLIC Case | 2 |
| 2.8inch touch LCD | 1 |
| OV2640 with M12 4mm lens | 1 |
| WiFi Antenna | 1 |
| Type-C USB cable | 1 |
| Li-ion Battery | 1 |
| Screw&Stud | 6 |

## ECCN/HTS

| | |
|---|---|
| ECCN | 3A991.a |
| HSCODE | 9023009000 |

## Bundle Sales



- [ ] This item: Sipeed MAix Go Suit for RISC-V AI+IoT
- [ ] Sipeed 6+1 Microphone Array for Dock/Go/Bit
- [ ] Sipeed MAIX Binocular Camera for Dock/Go/Bit
- [ ] Sipeed I2S Microphone for MAIX Dev. Boards Out of stock
- [ ] Sipeed MAIX-I module WiFi version ( 1st RISC-V 64 AI Module, K210 inside )
- [ ] Sipeed MAIX-I module w/o WiFi ( 1st RISC-V 64 AI Module, K210 inside )
- [ ] Sipeed MAix BiT for RISC-V AI+IoT