

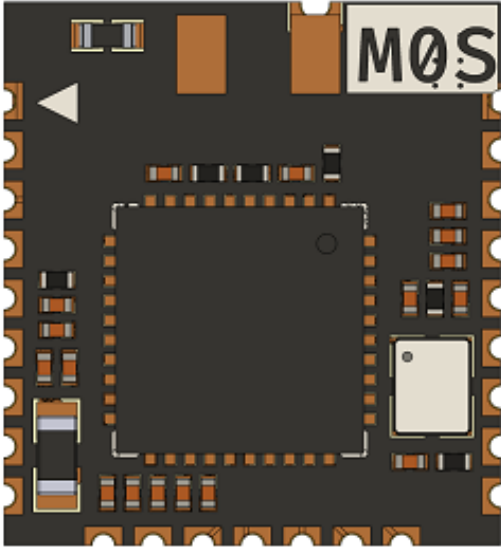
M0S module

2023-01-14

▼ Update history			
Date	Version	Author	Update content
2023-01-14	v0.1	wonder	<ul style="list-style-type: none">• Create file

1. Module summary

Sipeed M0S is a ultra-low power consumption tiny IOT module based on BL616 of **Bouffalo Lab**, supports wireless protocol like Wifi6, BT 5.2 and zigbee, 320MHz default frequency, tiny size and ultra-low power mode and various wake sources of the chip meet different low power scenarios.



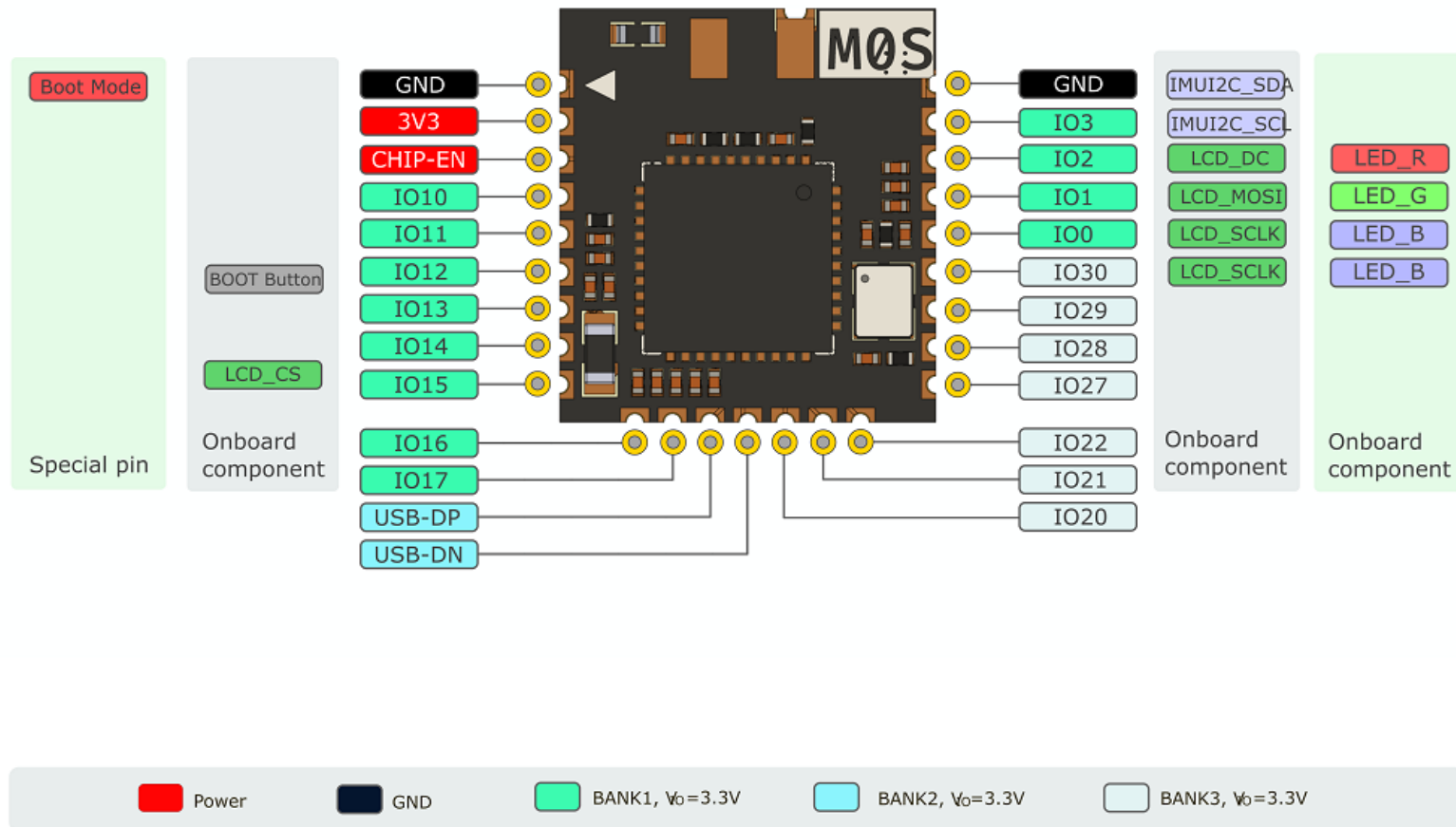
2. Module Feature

- Tri-Mode Wireless: WiFi6 / BT 5.2 / Zigbee
- High Frequency: 320MHz default
- Ultra-low Power Consumption: Wifi6 low power consumption feature
- DSP Acceleration: Support RISC-V P Extended instruction set, double speeds up TinyMaix reasoning frame.
- High speed USB: Support USB2.0 HS OTG, up to 480Mbps
- Rich peripheral ports: Support RGB LCD, DVP Camera, Ethernet RMII and SDIO
- Tiny Size: Place ceramic antenna on 10x11 mm tiny size, and route all IO out

3. Module Parameter

M0S Module	
Main Chip BL616	RISC-V CPU: RV32GCP@320MHz default
	480KB SRAM + 4MB Flash inside
	Wireless: - Support Wi-Fi6 - Support Bluetooth 5.2 Dual-mode(BT+BLE) - Support Zigbee
	USB 2.0 HS OTG
Onboard components	Ceramic antenna
Others	Size: 10mm (W) x 11mm (H)
	Package file (KiCAD): Click me
	3D model file: Click me

4. Pinmap



5. Comparson

Model	M0S Module	ESP32-S3 N4 Module
Chip	BL616(RV32GCP)	ESP32-S3 (LX7)
Frequency	320MHz	240MHz

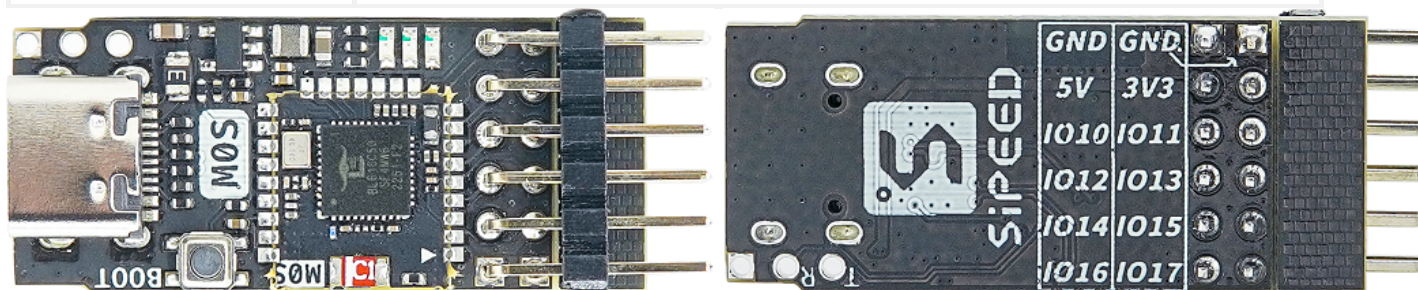
Model	M0S Module	ESP32-S3 N4 Module
SRAM	480KB	520KB
Flash	4MByte	4MByte
Wifi	WiFi6	WiFi4
Bluetooth	BT5.2	BT5
USB	USB2.0 HS OTG 480Mbps	USB2.0 FS OTG 12Mbps
IIC/UART/SPI	Yes	Yes
DVP Camera	Yes	Yes
Size	10mm x 11mm	18mm x 25.5mm
Model platform	TinyMaix + MaixHub	---

6. M0S Dock

M0S Dock	
Module x 1	M0S Module
Key x 1	Press this key then boot this device to burn this module

M0S Dock

LED x 3	One power LED, Two user LEDs
TypeC Port x 1	To download firmware or other custom USB function
IO connector x 10	8 IO route to Pin headers 2 IOs near TypeC Port
Schematic	点我



7. Software

M0S Module

OS	FreeRTOS
Development	<ul style="list-style-type: none"> · C SDK · MaixHAL C · PikaPython

M0S Module	
Burn Firmware	<ul style="list-style-type: none"> · USB uart burn · · USB burn
AI Framework	TinyMaix Framework
AI model	<ul style="list-style-type: none"> · MaixHub
Sipeed examples	<ul style="list-style-type: none"> · https://github.com/sipeed/M0S_BL616_example

8. Other Links

- [M0S Datasheet](#)
- [M0S Schematic](#)
- [M0S Package](#)
- [3D Model File](#)
- [Bouffalolab official documents](#)
- [BL616 DataSheet](#) (github)
- [BL616 Reference Manual](#) (github)

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- [M0S Dock Datasheet](#)
 - [M0S Dock Schematic](#)
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- [SDK \(Github\)](#)
- [Telegram](#)
- [Twitter](#)
- [Reddit](#)
- [Online model platform](#)

9. Attentions

Item	Attention
Electrostatic protection	Avoid static electricity hitting the PCBA. Release the static electricity of hand before touching the PCBA
Operating voltage	Do not allow the actual operating voltage of the GPIO to exceed the rated value, otherwise the PCBA will be permanently damaged
Plug and Remove	Power off completely before plugging or removing it
Avoid short circuit	During the power-on, avoid any liquid or metal touching PCBA components, otherwise the PCBA will be damaged even burn

10. Contact

2/11/23, 2:19 AM

M0sense eets different needs of customers in various scenarios. Please contact email marykeil@163.com for technical support and business cooperation.