AtomS3

SKU:C123



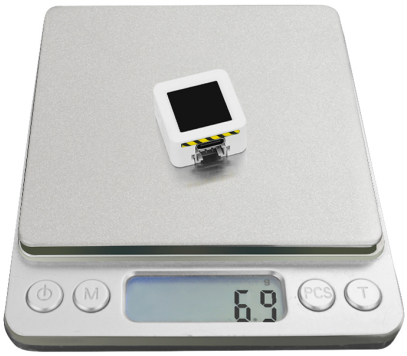








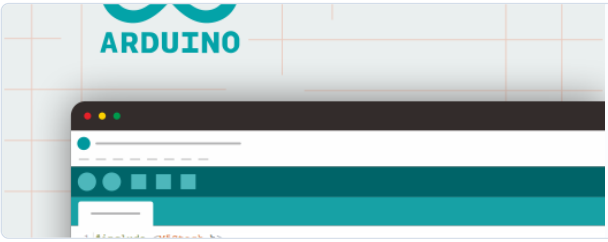




Description

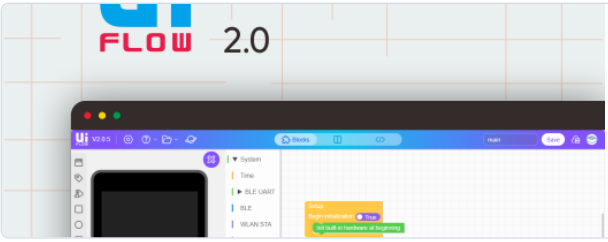
AtomS3 is a highly integrated programmable controller based on the **ESP32-S3** main controller. It integrates the ESP32-S3 main controller, **Wi-Fi** functionality, 8 MB on-chip Flash, and a **0.85-inch IPS screen**. Below the screen, there is a **programmable button function**, a built-in 5V to 3.3V circuit, and a 6-axis gyroscope sensor **MPU6886**. It has an onboard **USB Type-C** interface for power supply and firmware download, as well as a **HY2.0-4P** expansion port. The bottom reserves 6 **GPIO and power pins** for easy expansion applications. The product size is 24.0 x 24.0 x 13.0mm, suitable for various **embedded** smart device applications.

Tutorial



Arduino IDE

This tutorial will introduce how to program and control the AtomS3 device using the Arduino IDE.



UiFlow2

This tutorial will introduce how to control the AtomS3 device through the UiFlow2 graphical programming platform.

Features

- Developed based on ESP32-S3FN8
- Built-in USB download function
- Built-in 3-axis gyroscope and 3-axis accelerometer (MPU6886)(I2CAddress: 0x68)
- Programmable button
- 0.85-inch LCD screen
- Infrared transmission function
- Expandable pins and interfaces
- Development Platform
  - UiFlow2
  - Arduino IDE
  - ESP-IDF
  - PlatformIO

Includes

- 1 x AtomS3

Applications

- IoT nodes
- Microcontrollers

Specifications

Specification	Parameter
SoC	ESP32-S3FN8 @ Xtensa® 32-bit LX7 dual-core processor, clock frequency 240MHz
Flash	8MB
DC-DC	SY8089
IMU	MPU6886 (I2CAddress: 0x68)
TFT Driver IC	GC9107
Resolution	128 x 128
Operating Temp	0 ~ 40°C
Power Supply	5V
Power Method	TYPE C
Output Voltage	3.3V
GPIO	G5/G6/G7/G8/G38/G39
Screen Protocol	SPI
Product Size	24.0 x 24.0 x 12.9mm
Product Weight	6.9g
Package Size	85.0 x 65.0 x 16.0mm
Gross Weight	11.2g

Learn

Download Mode

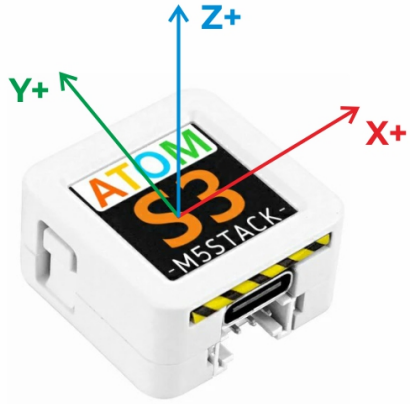
To flash firmware, press and hold the reset button (about 2 seconds) until the internal green LED lights up, then release the button. After release, the green LED turns off, indicating that the device has entered download mode and is ready for flashing.



LCD Backlight Control

The PWM signal frequency for the LCD backlight driver is recommended to be 500Hz. A frequency that is too high may cause abnormal brightness adjustment functionality.

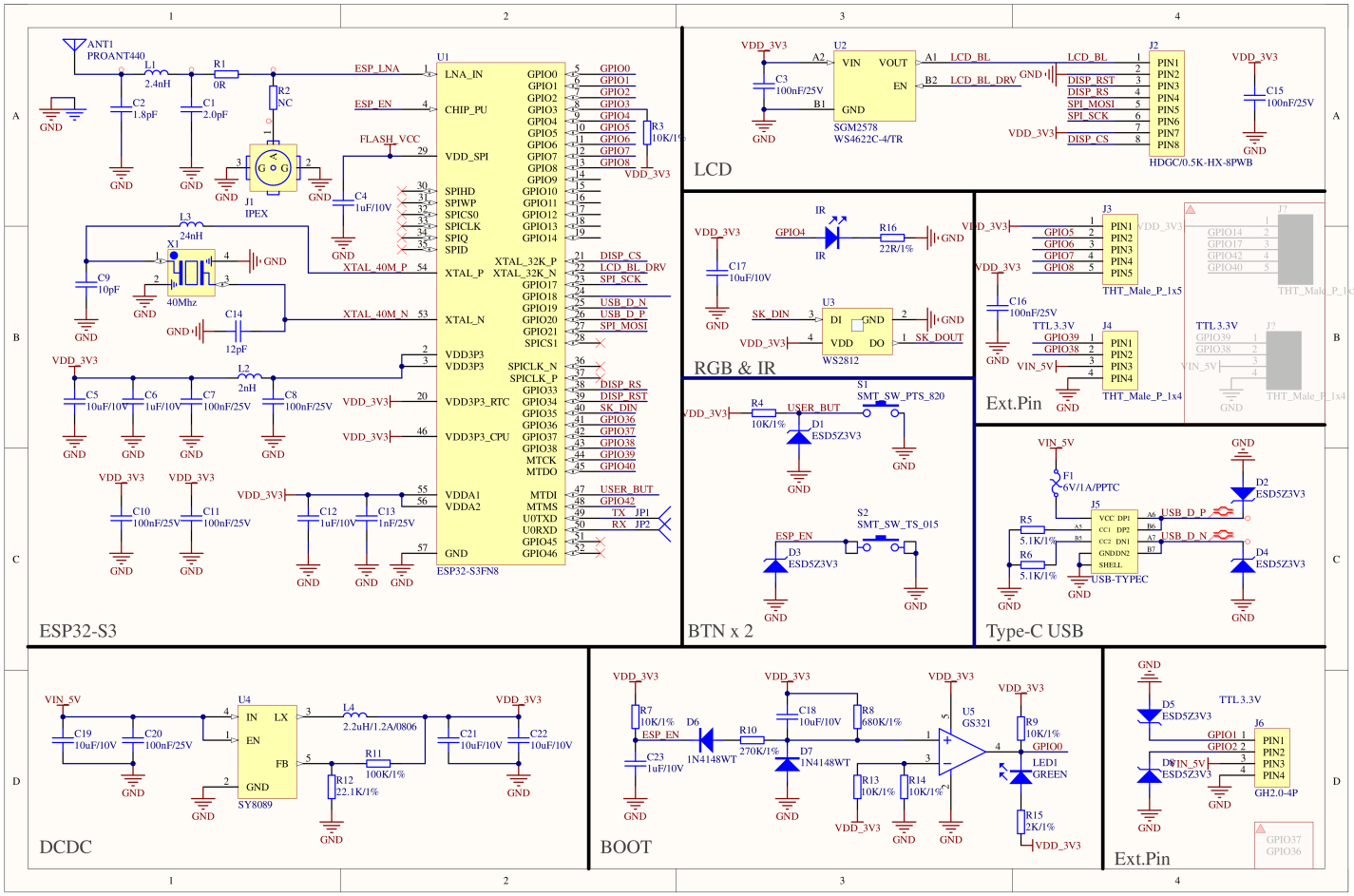
IMU Triaxial Direction Schematic Diagram

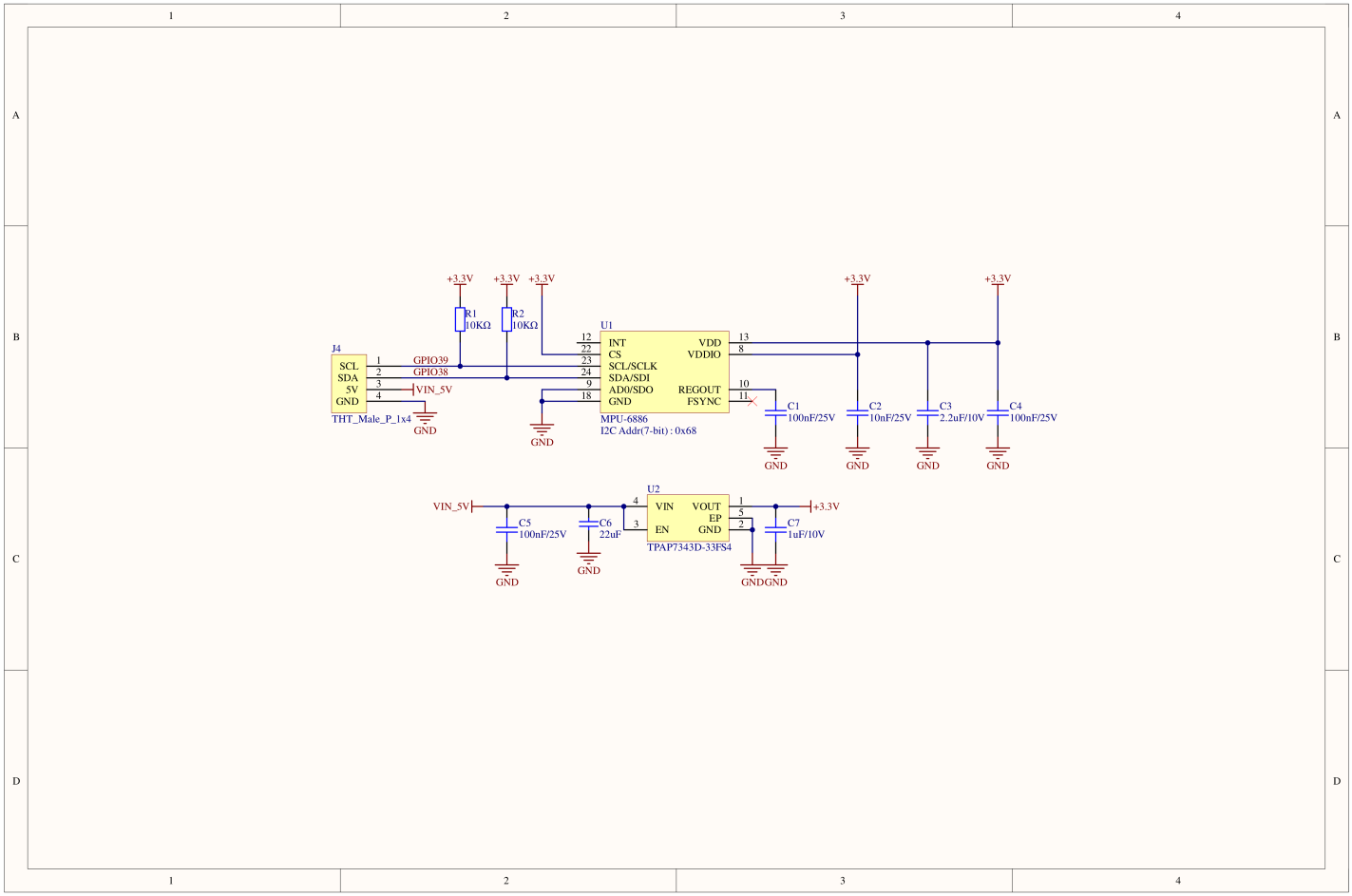


IMU ORIENTATION OF AXES

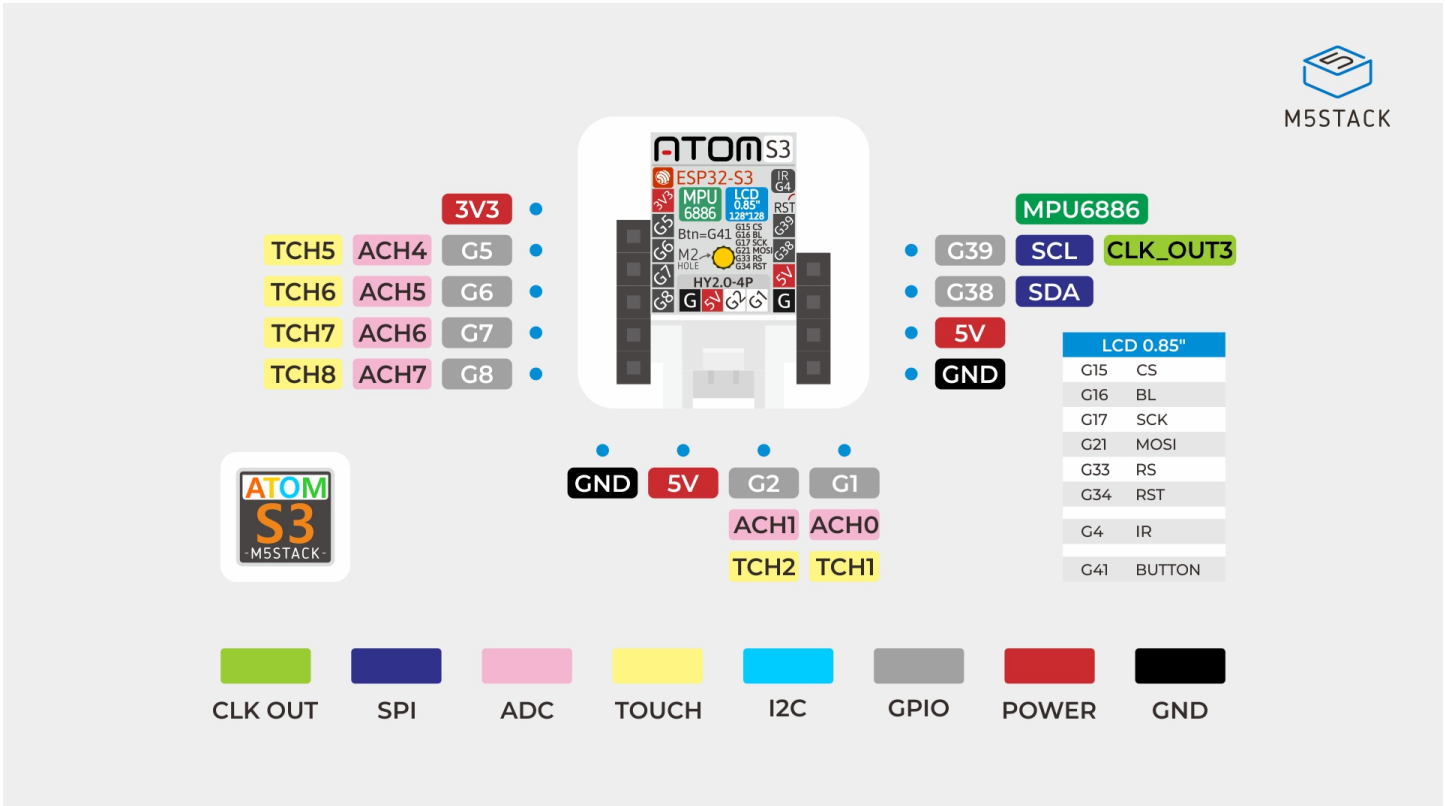
Schematics

- AtomS3 Schematics PDF
- AtomS3 IMU Schematics PDF





PinMap



MPU6886

The I2C pins on the back share the same bus

ESP32-S3	IO38	IO39
MPU6886 (0x68)	SDA	SCL

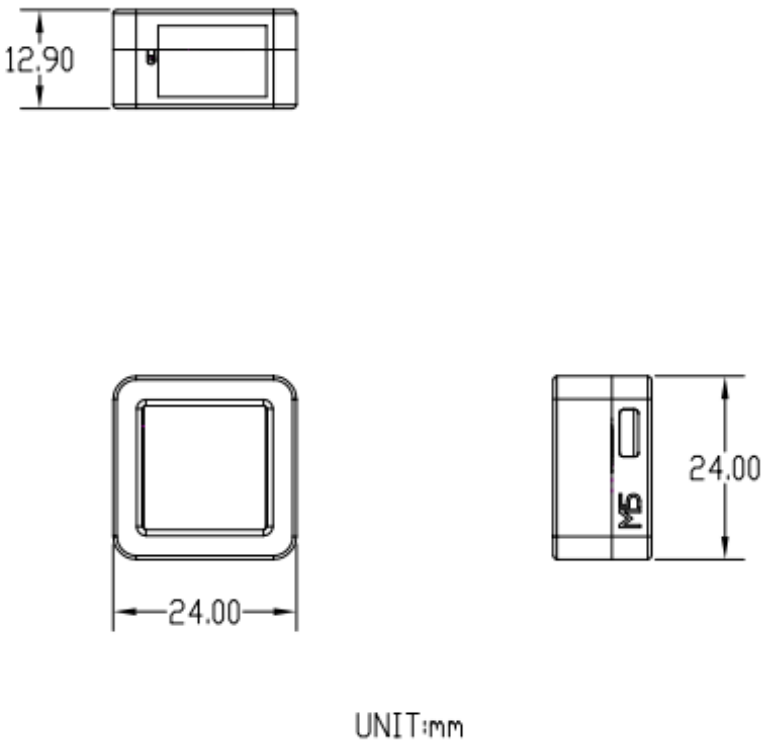
LCD

ESP32-S3	G21	G17	G15	G33	G34	G16
GC9107	MOSI	SCK	CS	RS	RST	LCD_BL

HY2.0-4P

HY2.0-4P	Black	Red	Yellow	White
PORT.CUSTOM	GND	5V	G2	G1

Model Size



Structure

- AtomS3 Structure Files

Datasheets

- ESP32-S3
- SY8089
- MPU6886

Softwares

Arduino

- AtomS3 Arduino Quick Start
- AtomS3 Arduino Library

UiFlow2

- AtomS3 UiFlow2 Quick Start

PlatformIO

- AtomS3 Factory Firmware

```
[env:m5stack-atoms3]
platform = espressif32
board = esp32-s3-devkitc-1
framework = arduino
upload_speed = 1500000
monitor_speed = 115200
build_flags =
    -DESP32S3
    -DCORE_DEBUG_LEVEL=5
    -DARDUINO_USB_CDC_ON_BOOT=1
    -DARDUINO_USB_MODE=1
lib_deps =
    M5Unified=https://github.com/m5stack/M5Unified
```

Easyloader

Easyloader	Download Link	Note
AtomS3 User Demo	download	/

Video

Product Comparison

To compare information on the Atom series products, you can visit the Product Selection Table, check the target products, and get the comparison results. The selection table covers key information such as core parameters and functional features, and supports comparison of multiple products simultaneously.