M5StickC

Tutorial&Quick-Start

Choose the development platform you want to use, view the corresponding tutorial&quick-Start.

UIFlow   Arduino   AWS FreeRTOS

Description

M5StickC is a mini M5Stack, powered by ESP32. It is a portable, easy-to-use, open source, IoT development board. What it can do? This tiny block is able to realize your idea, enlighten your creativity, and help with your IoT prototying in a very short time. It will take away a lot of pains from the development process.M5stickC is one of the core devices in M5Stack product series.

It is built in a continually growing hardware and software ecosystem. It has a lot of compatible modules and units, as well as the open source code & engineering communities that will help you maximize your benefits in every step of the developing process.

Power switch operation:

◦ Power on：Press power button for 2 seconds

◦ Power off：Press power button for 6 seconds

◦ The input range of VBUS_VIN and VBUS_USB is limited to 4.8-5.5V, and the internal battery will be charged through AXP192 power management when VBUS is powered.

Notice:

◦ Baud rate supported by M5StickC: 1200 ~115200, 250K, 500K, 750K, 1500K

Product Features

◦ ESP32-based

◦ Built-in 6-Axis IMU

◦ Red LED

- IR transmitter
- Microphone
- Buttons, LCD(0.96 inch)
- Built-in Lipo Battery
- Extendable Socket
- Wearable & Wall mounted
- Development Platform UIFlow, MicroPython, Arduino

Include

- 1x M5StickC
- 1x USB Type-C(20cm)

Applications

- Internet of things terminal controller
- Wearable devices
- Stem education product
- DIY creation

USB Drive problems

UnitV/M5StickV/M5StickC/ATOM may not work without driver in some systems. Users can manually install **FTDI driver** to fix this problem. Take the win10 environment as an example, download the driver file that matches the operating system, decompress it, and install it through the device manager. (Note: In some system environments, the driver needs to be installed twice for the driver to take effect. The unrecognized device name is usually **M5Stack** or **USB Serial** . Windows recommends using the driver file to install directly in the device manager (custom Update), the executable file installation method may not work properly).
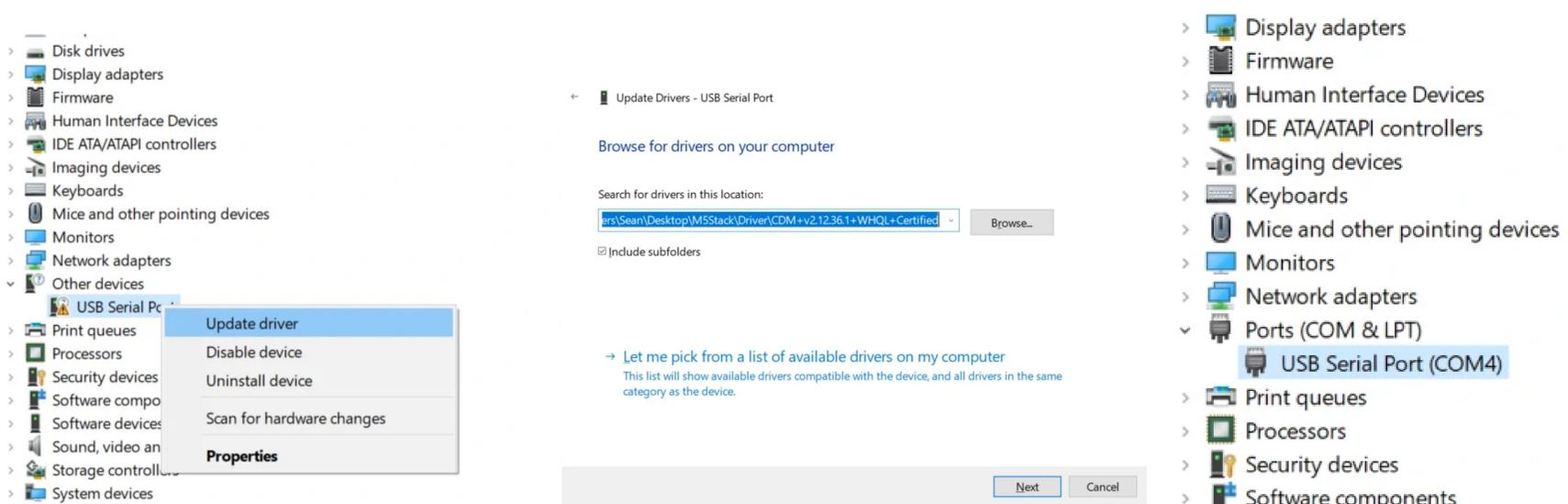
Specification

Resources	Parameter
ESP32	240MHz dual core, 600 DMIPS, 520KB SRAM, Wi-Fi, dual mode Bluetooth
Flash Memory	4MB

Resources	Parameter
Power Input	5V @ 500mA
Port	TypeC x 1, GROVE(I2C+I/0+UART) x 1
LCD screen	0.96 inch, 80*160 Colorful TFT LCD, ST7735S
Button	Custom button x 2
LED	RED LED
MEMS	MPU6886
IR	Infrared transmission
MIC	SPM1423
RTC	BM8563
PMU	AXP192
Battery	95 mAh @ 3.7V
Antenna	2.4G 3D Antenna
PIN port	G0, G26, G36
Operating Temperature	0°C to 60°C
Net weight	15.1g
Gross weight	33g
Product Size	48.2*25.5*13.7mm
Package Size	55*55*20mm
Case Material	Plastic (PC)

EasyLoader

EasyLoader is a concise and fast program writer, which has a built-in case program related to the product. It can be burned to the main control by simple steps to perform a series of function verification.
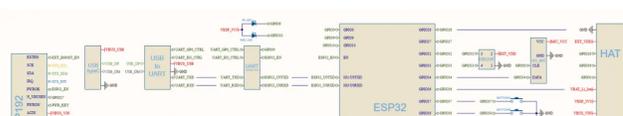
Download Windows Version Easyloader   Download MacOS Version Easyloader

Description:
Accelerometer, microphone, LED, IR, RTC, Bluetooth and other hardware tests. Press A or B to switch test items.

Schematic

PinMap

Power structure block diagram
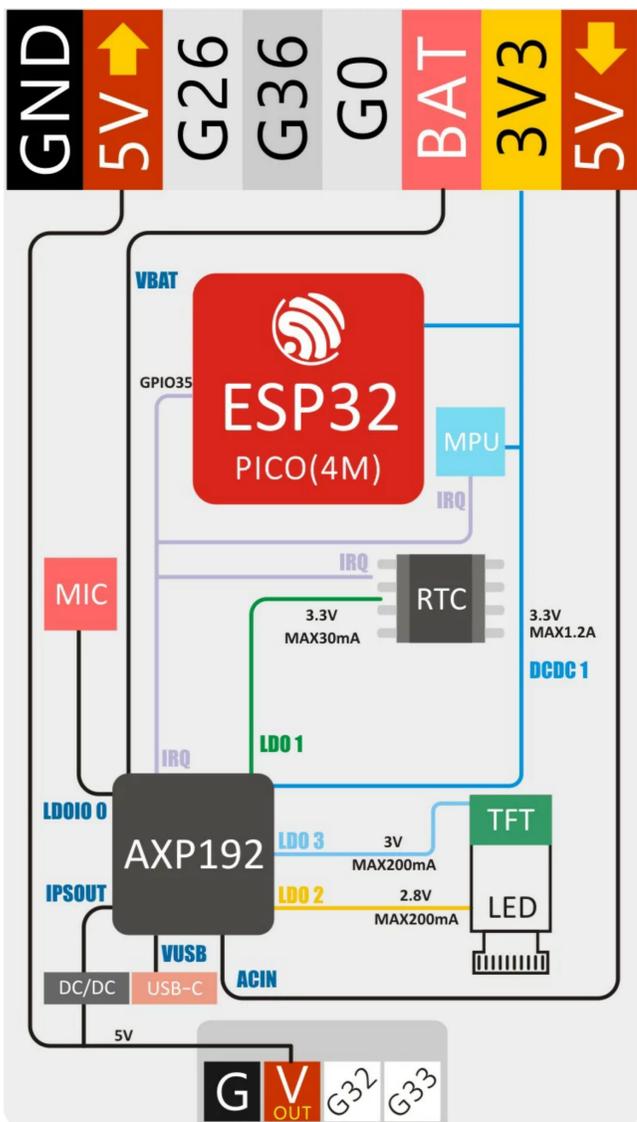
RED LED & IR Transmitter & BUTTON A & BUTTON B

ESP32	GPIO10	GPIO9	GPIO37	GPIO39
RED LED	LED Pin			
IR Transmitter		Transmitter Pin		
BUTTON A			Button Pin	
BUTTON B				Button Pin

TFT LCD

Driver IC：ST7735S

Resolution：80 * 160

ESP32	GPIO15	GPIO13	GPIO23	GPIO18	GPIO5
TFT LCD	TFT_MOSI	TFT_CLK	TFT_DC	TFT_RST	TFT_CS

GROVE PORT

ESP32	GPIO33	GPIO32	5V	GND
GROVE port	SCL	SDA	5V	GND

MIC (SPM1423)

ESP32	GPIO0	GPIO34
MICPHONE	SCL	SDA

6-Axis posture sensor (SH200Q/MPU6886) & power management IC (AXP192)

ESP32	GPIO22	GPIO21
6-Axis IMU sensor	SCL	SDA
power management IC	SCL	SDA

AXP192

Microphone	RTC	TFT backlight	TFT IC	ESP32/3.3V MPU6886/SH200Q	5V GROVE
LDOio0	LDO1	LDO2	LDO3	DC-DC1	IPSOUT

Charging current measured value

charging current	Fully charged current(Power OFF)	Fully charged current(Power ON)
0.488A	0.066A	0.181A

┃ Related Link

○ **datasheet**

  ○ ESP32-PICO

  ○ ST7735SV

structural-design-file

click here for open source architecture design files

Learn

Audio Visualization with ESP32, i2s Mic and RGB Led Strip

M5StickC (ESP32 Pico) with built-in i2s microphone is used for audio spectrum analysis (ArduinoFFT) and visualization on an RGB led strip.

Arduino Web Radio Player

m5WebRadio is a sketch to play web streaming radio station on a M5Stick-C esp32 module: A $13 esp32 net radio player.

Turn M5StickC Into Universal IR Remote (Home Automation)

Take a $9 M5StickC, few lines of YAML configuration to build ESPHome, Home Assistant and start controlling your TVs and climates in minutes.

COVID-19 Real-Time Data Monitor

This simple project visualizes the current data of the coronavirus outbreak of different countries in real-time on an M5StickC.

Hand washing timer with water sound detector

A hand-washing timer with water sound detection, which uses the M5StickC's built-in microphone and does not require any external components.

M5StickC Textbuffer Scrolling Display

A library to display texts on the M5StickC in any orientation. The display scrolls and wraps text lines automatically.

M5Stick Libra Watch & Wallet

(First?) Libra Watch & Hardware wallet. Built on M5SickC devices using KULAP libra services.

First Steps with M5Stick-C

A wearable, sensor-packed ESP32 IoT device with TFT display.

Nixie Tube Watch Simulated on ESP32 Using the M5Stick

To build a Nixie tube clock is a perpetual project on my mind. I wanted to see was made by software.

Very Simple M5StickC Clock

Got a few mins to do a little clock, so here it is

Arduino Animated GIF Player

Play any animated GIF file from SPIFFS directly onto TFT screen as-is, WITHOUT converting to RGB565 or PROGMEM as script.

3D Print Bed Leveling Tool Using M5StickC

A tool that helps makers and professionals level their FDM-based 3D Print Bed

CO2 meter using M5StickC

I made a CO2 concentration meter for the purpose of room ventilation guide. The CO2 sensor is MH-Z19B, NDIR type.

Hall Sensor and Temperature Sensor in ESP32

This is a simple project using M5Stick and MicroPython in order to obtain data from the Hall sensors and temperature embedded in the chip.

One Watch, Multiple features, Smart Watch Using M5Stick C

In this tutorial we'll show you the most efficient and easy to use application of M5Stick-C as smart watch.

M5 Smart Watch-Using DEEP SLEEP function to increase Battery

A watch on wrist is worth two in the drawer. Why not your own DIY watch with #M5StickC? A watch with good battery life and smart features.

Thonny And M5Stack UIFlow

How to program M5Stack products using UIFlow and have Thonny running to diagnose errors over USB.

Notifications From iPhone to ESP32-Watch

We can receive iPhone notifications via BLE, ANCS. M5StickC is including BLE module, LCD, RTC, Battery. Let's make the ⌚WATCH⌚.

M5StickC Watch

A simple watch (long stamina, 3 alarms, settings over Bluetooth and mobile application) with big potential. :) #M5StickC

M5Stick-Car

I made a Blynk-controlled mini car using M5Stick-C. Pretty good!

Chirp with M5StickC

I tried sound signal communication with Chirp using M5StickC.

M5StickC Watch

A simple watch for M5StickC with clock and date. You can also see battery level and display images.

Magic Wand

Utilize a 6-axis IMU sensor SH200Q, to capture a magic wand motion.

Alexa / Google Assistant WiFi Sensor and Alarm (M5StickC)

Alexa and Google Assistant-compatible WiFi sensor and alarm. Works on any flat surfaces: fridge, door, window, garage door, etc.

RoverC with M5Atom

Using M5StickC on RoverC and JoyC with M5Atom attached to display direction of the RoverC.

Fun with ATOM Matrix

Simple MicroPython code for the ATOM 5 x 5 LED matrix and its built-in MPU6886 accelerometer. It works with the M5StickC + NeoFlash Hat.

MiMaMori Alert for Your Home Security

"MiMaMori Alert" is automatic security camera for your home. Automatic learning without teacher images, and notify if something is visitor.

Deep Learning Speech Commands Recognition on ESP32

Train a neural network model in 10 minutes, and use it on ESP32 with MicroPython to control a light switch. Everything done in browser.

Bluetooth programmable mecanum wheel robot

Use Bluetooth serial to program omnidirectional movement sequences. Make a game out of it and try to guide the robot around obstacles.

Wireless Barcode Scanner

M5StickV and M5StickC with HID Bluetooth Wireless or Atomic QR-Code reader

Wireless Gamepad with ESP32 and BLE

Gamepad (prototype) based on M5StickC (ESP32 Pico) with I2C joystick module, dual button unit, and Bluetooth Low Energy connectivity.

Balance Robot

A robot that standing with steel linear of motors.

Example

Example

Arduino

- M5StickC facory test code

- M5StickC Vending Machine

UIFlow

For a tutorial on uiflow, see here

Video

Version Change

Release Date	Product Change	Note:
2019.3	Initial public release	/
2019.8	SH200Q changed to MPU6886	/
2019.10	Upgrade the bottom and add copper nuts	/
2020.3	Battery capacity changed from 80mAh to 95mAh	/