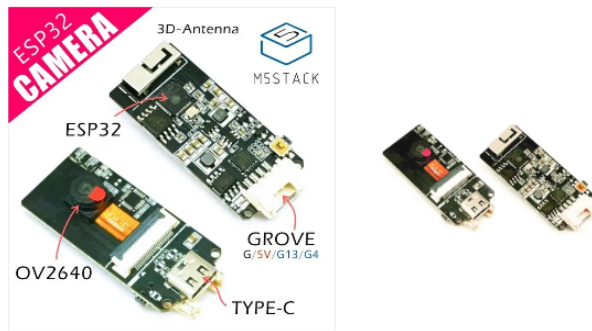


# ESP32CAM SKU:U007



## Description

ESP32CAM is a development board for image recognition. It features an ESP32(4M Flash + 520K RAM) chip and 2-Megapixel camera(OV2640). It also supports image transmission via Wi-Fi and debugging through USB Type-C port.

The hardware comes preloaded software, programmed by ESP-IDF. It is an application to run Wi-Fi camera. The output image is size 600\*800, since it's 2-Mega camera, you sure can optimize the software to output the maximum size of photos.

what this software can do?

Power the board via USB type -C or GROVE

Use your phone to Wi-Fi scan an AP name start with 'm5stack -' and click to connect this AP.

Open up web browser on your phone and visit [192.168.4.1](http://192.168.4.1)

Then here comes the picture. Video is about 5-6 frames per seconds. not super fast.

## Product Features

ESP32 specifications  
 CP2104 USB TTL  
 2M image processor  
 65° Field of View

## Include

1x ESP32CAM

## Specification

Resources	Parameter
Flash	4MB
RAM	520KB
Image Sensor	OV2640
Maximum resolution	200w pixel
Transmission rate	UXGA/SXGA: 15fps, SVGA: 30fps, CIF: 60fps
Output format	YUV(422/420)/YCbCr422, RGB565/555, 8-bit compressed data
net weight	6g
Gross weight	18g
Product Size	20.5*46.5*11.5mm
Package Size	60*57*17mm

## EasyLoader

[click to download EasyLoader](#)

1.EasyLoader is a simple and fast program burner. Every product page in EasyLoader provides a product-related case program. It can be burned to the master through simple steps, and a series of function verification can be performed. .

After downloading the software, double -click to run the application, connect the M5 device to the computer through the data cable, select the port parameters, click "Burn" to start burning. (For M5StickC burning, please Set the baud rate to 750000 or 115200 )

- 3. Currently EasyLoader is only suitable for Windows operating system, compatible with M5 system adopts ESP32 as the control core host. Before installing for M5Core, you need to install CP210X driver (you do not need to install with M5StickC as controller) [Click here to view the driver installation tutorial](#)

## PinMap

### Camera Interface PinMap

Interface	OV2640 Pin	ESP32Cam
SCCB Clock	SIOC	IO23
SCCB Data	SIOD	IO22
System Clock	XCLK	IO27
Vertical Sync	VSYNC	IO25
Horizontal Reference	HREF	IO26
Pixel Clock	PCLK	IO21
Pixel Data Bit 0	D2	IO17
Pixel Data Bit 1	D3	IO35
Pixel Data Bit 2	D4	IO34
Pixel Data Bit 3	D5	IO5
Pixel Data Bit 4	D6	IO39
Pixel Data Bit 5	D7	IO18
Pixel Data Bit 6	D8	IO36
Pixel Data Bit 7	D9	IO19
Camera Reset	RESET	IO15
Camera Power Down	PWDN	see Note 1
Power Supply 3.3V	3V3	3V3
Ground	GND	GND

### GROVE Interface

Grove	ESP32Cam
SCL	IO4
SDA	IO13
5V	5V
GND	GND

### LED Interface

LED	ESP32Cam
LED_Pin	IO16

reserved chip interfaces

### BME280 Interface

I2C address 0x76.

BME280	ESP32Cam
SCL	IO4
SDA	IO13

### MPU6050 Interface

I2C address is 0x68.

MPU6050	ESP32Cam
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SCL	IO4
SDA	IO13

## MIC(SPQ2410) Interface

*SPQ2410* *ESP32Cam*

OUT	IO32
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### NOTE:

Camera Power Down pin does not need to be connected to ESP32 GPIO. Instead it may be pulled down to ground with 10 kOhm resistor.

We have several patterns of camera board, the following figures shows the main difference

[Datasheet](#) - [ESP32](#) - [OV2640](#)

## Schematic

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[Schematic](#)

## Example

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### Firmware

[ESP32CAM Firmware](#)

[Serial communication-ESP32CAM](#)

### ArduinoIDE

[Serial communication](#) - [M5Core](#) (The serial communication routine is the communication between the camera and the M5Core.)

## Video

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[ESP32CAM Case - 01](#)

