WAVESHARE P3-64×64 RGB Full Color LED Matrix Panel Instruction Manual

WAVESHARE P3-64×64 RGB Full Color LED Matrix Panel

Contents

Important Information

This product is a bare screen and needs to be displayed with the main control board such as Raspberry Pi, ESP32, and Arduino. For details, please refer to the list.

RGB LED, 64 x 64=4096 DOTS, 3mm Pitch

Overview

Introduction

This product is a 64 × 64 full-color LED matrix panel with 4096 RGB LEDs onboard and 3mm pitch, which supports Raspberry Pi and Arduino, etc. It provides supporting open-source demos and tutorials, suitable for makers or electronics Enthusiasts to start learning, or DIY secondary development into other desktop or wall-

mounted display applications.

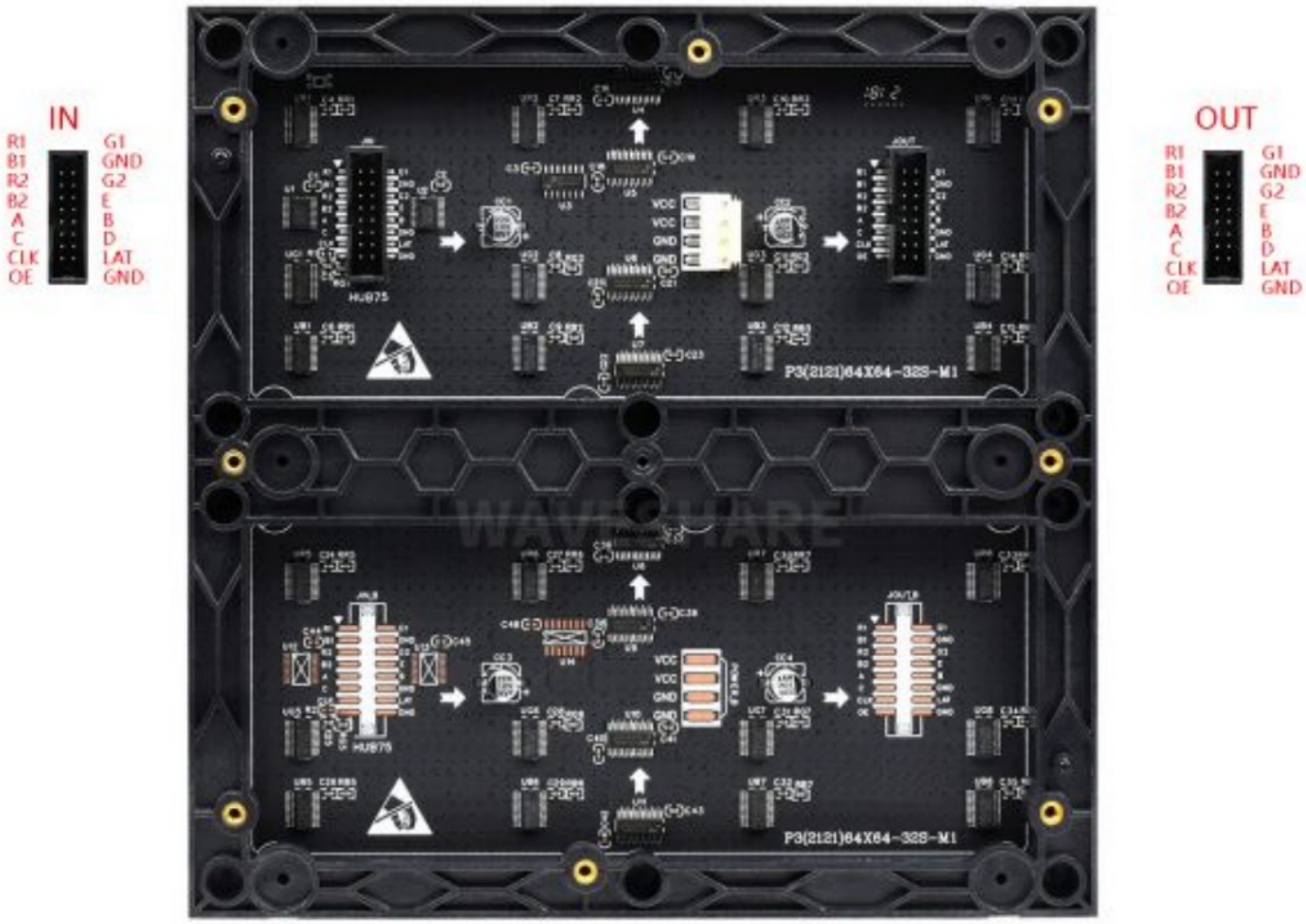
Features

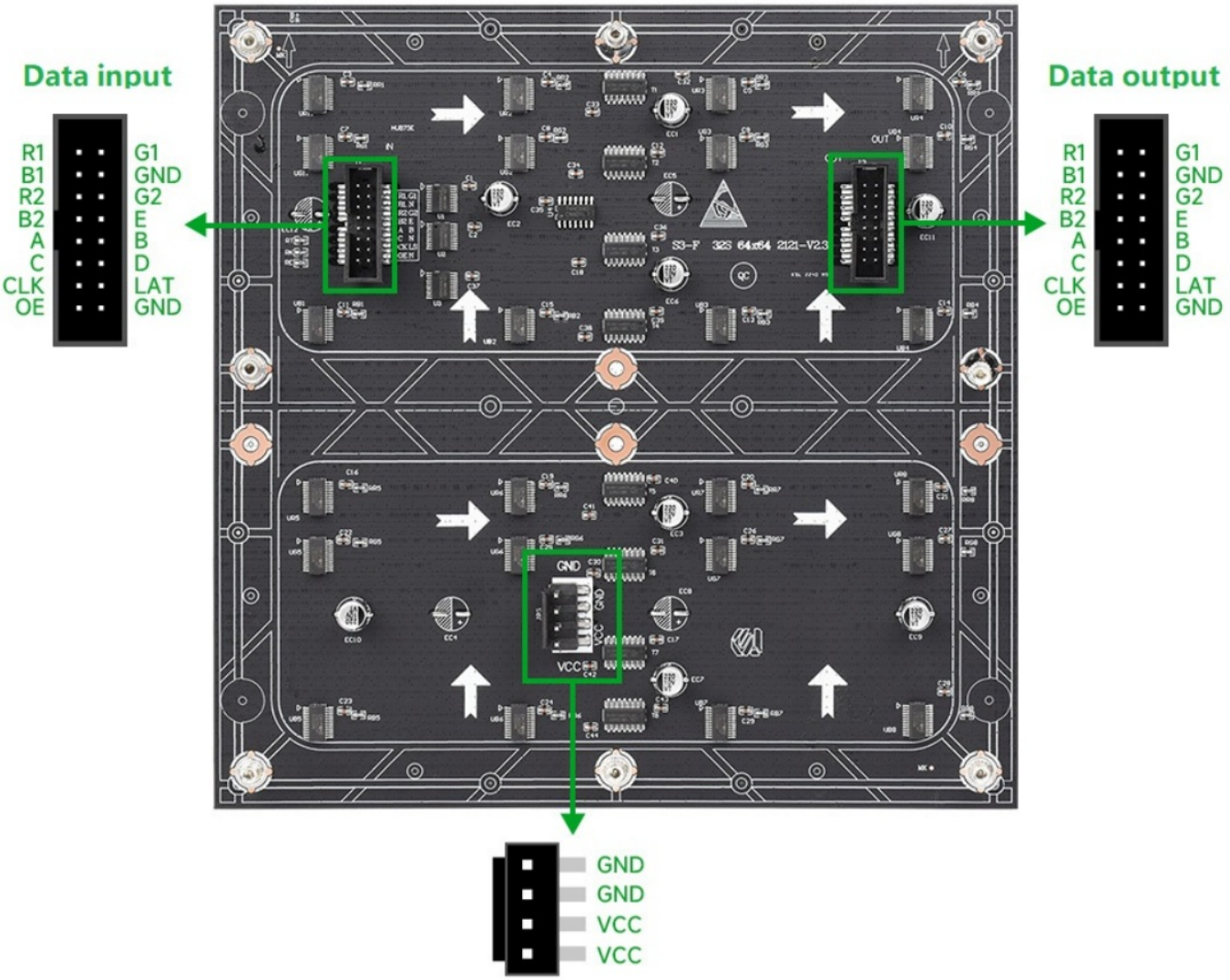
- 4096 individual RGB LEDs, full-color display, adjustable brightness.
- 64 × 64 pixels, 3mm pitch, allows displaying text, colorful images, or animation.
- 192 × 192mm dimensions, moderate size, suitable for DIY desktop display or wall mount display.
- Onboard two HUB75 headers, one for controller data input, one for output, and chain support.
- Provides open-source development resources and tutorials, for use with Raspberry Pi, Arduino, and so on.

Specifications

DIMENSIONS	192mm × 192mm
PIXELS	64 × 64=4096 DOTS
PITCH	3mm
PIXEL FORM	1R1G1B
VIEWING ANGLE	≥160°
CONTROL TYPE	synchronization
DRIVING	1/32 scan
HEADER	HUB75E
POWER SUPPLY	5V / 4A VH4 header input
POWER	≤20W

Header Definition


IN
R1
B1
R2
B2
A
C
CLK
OE
G1
GND
G2
E
B
D
LAT
GND
OUT
R1
B1
R2
B2
A
C
CLK
OE
G1
GND
G2
E
B
D
LAT
GND
P3(2121)64X64-32S-M1
P3(2121)64X64-32S-M1

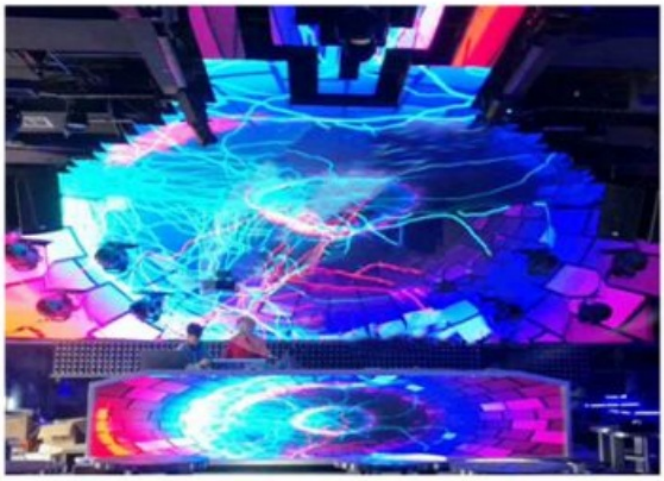

Data input
R1
B1
R2
B2
A
C
CLK
OE
G1
GND
G2
E
B
D
LAT
GND
Data output
R1
B1
R2
B2
A
C
CLK
OE
G1
GND
G2
E
B
D
LAT
GND
GND
VCC
GND
GND
VCC
VCC

PIN	DESCRIPTION		PIN	DESCRIPTION
VCC	5V power input		GND	Ground
R1	R higher bit data		R2	R lower bit data
G1	G higher bit data		G2	G lower bit data
B1	B higher bit data		B2	B lower bit data
A	A line selection		B	B line selection
C	C line selection		D	D line selection
E	E line selection		CLK	clock input
LAT/STB	latch pin		OE	output enable

Note: The power supply ports (VCC and GND) of the display screen are 5V power supply, do not connect to other power supply voltages, so as not to burn the display screen.

Usage Scenarios

DIY Maker Desktop Or Wall Mount Display, Signboard, Environment Monitor…



Raspberry Pi Instructions

Please refer to the github information: Demo, wiring reference.

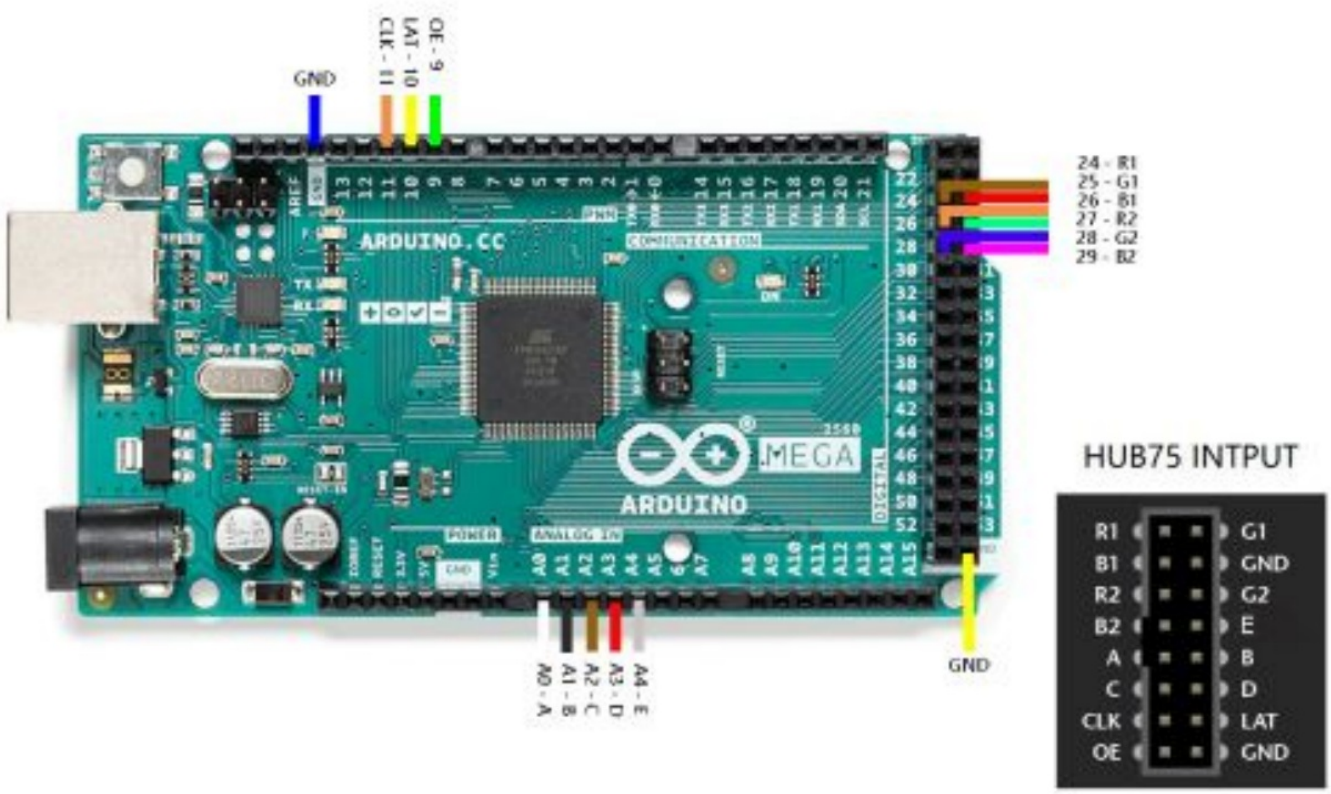
User Guides for Arduino Mega

Hardware Connection

Preparation

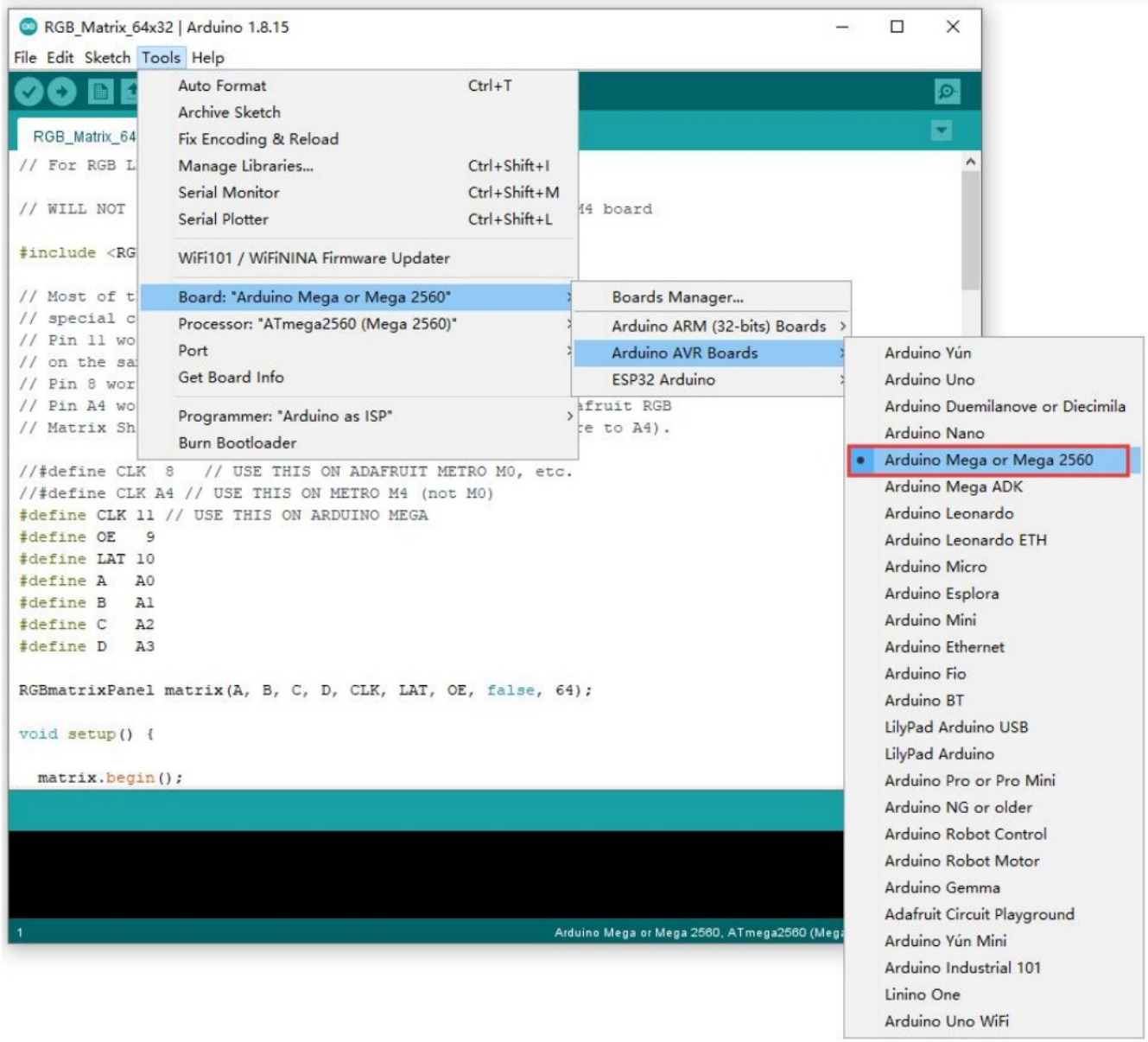
- RGB-Matrix-P3-64×64
- Arduino Mega (please purchase it separately)

Hardware Connection Diagram



Software Settings

- Download example
- Copy the folder under libraries in AuroraDemo to the libraries in the installation directory of the Arduino IDE
- After connecting the wires according to the hardware connection diagram, the software settings are as follows:



RGB text display

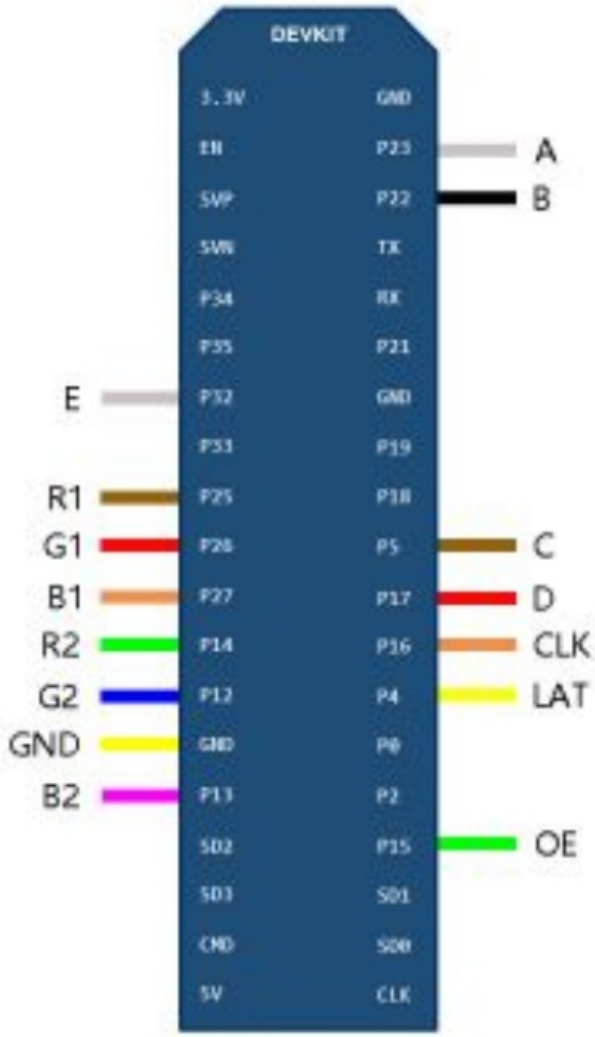
The effect of running the instance is shown in the following figure:

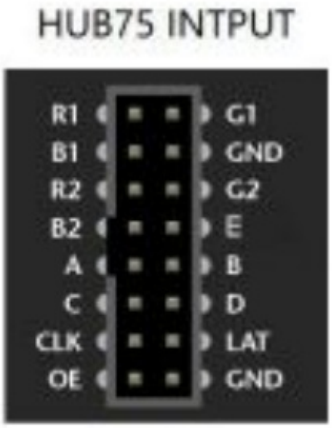
[Function Description]

- **UI:**
  - Can display icons
  - Can display text content such as text and numbers

Working With ESP32

Hardware Connection



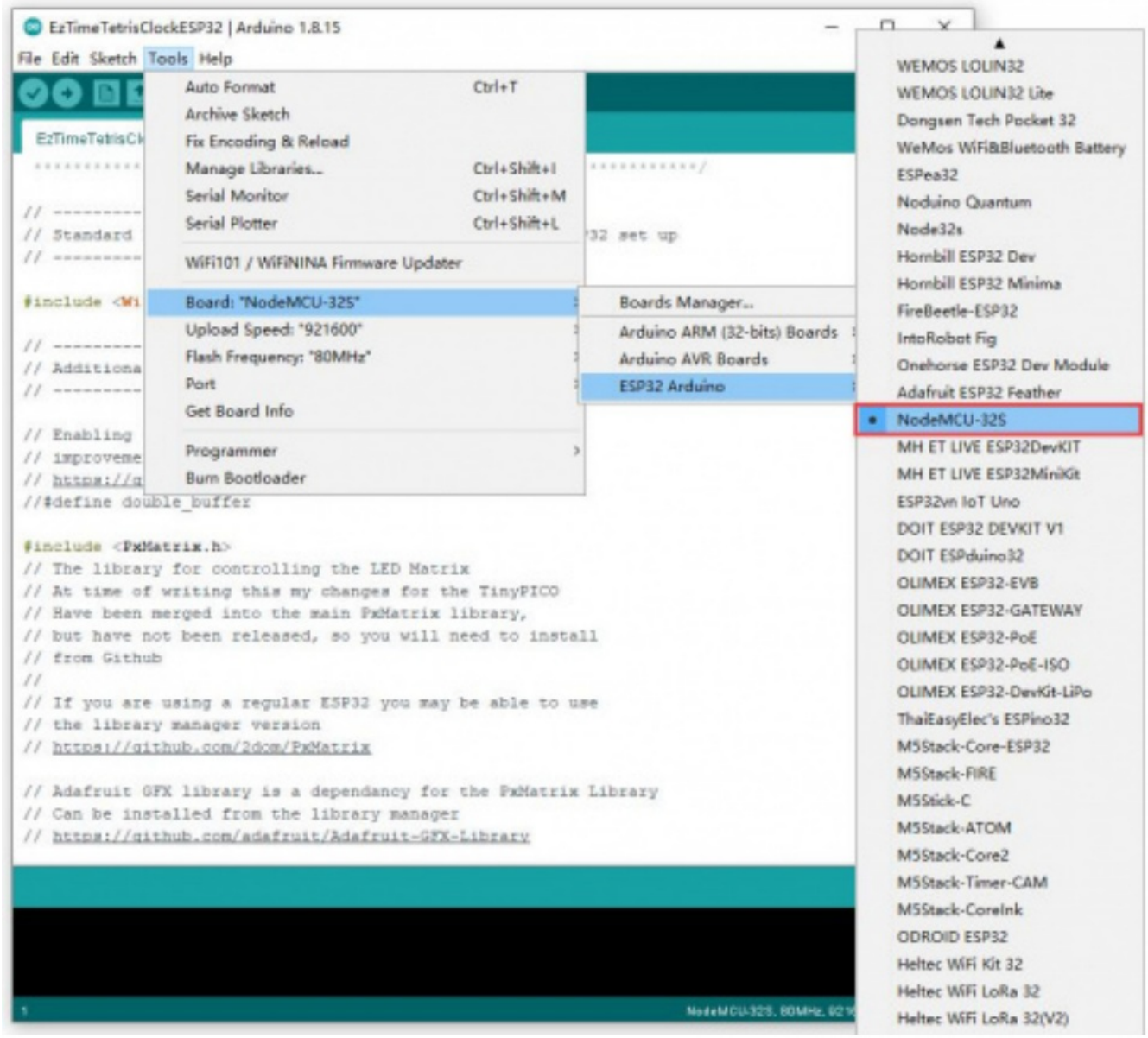


Preparation

- RGB-Matrix-P4-64×64
- NodeMCU-32S (not included)

Software Setting

- Download the **demo** .
- Copy the folder under libraries in AuroraDemo to the libraries in the installation directory of the Arduino IDE.
- After connecting the wires according to the hardware connection diagram, the software settings are as follows:



- Note: if you don't have the corresponding board, you can operate as below:

```
Click on file -> add board manager address -> enter: https://raw.githubusercontent.com/espress
```

Perform

```
SimpleTestShapes: Display basic shapes
PatternPlasma: Displays cool plasma patterns
BouncingSquares: Show bouncing squares
AuroraDemo: Simple example showing various animation effects
#There is an open source project on GitHub: ESP32-HUB75-MatrixPanel-I2S-DM
A, which has a more detailed introduction.
```

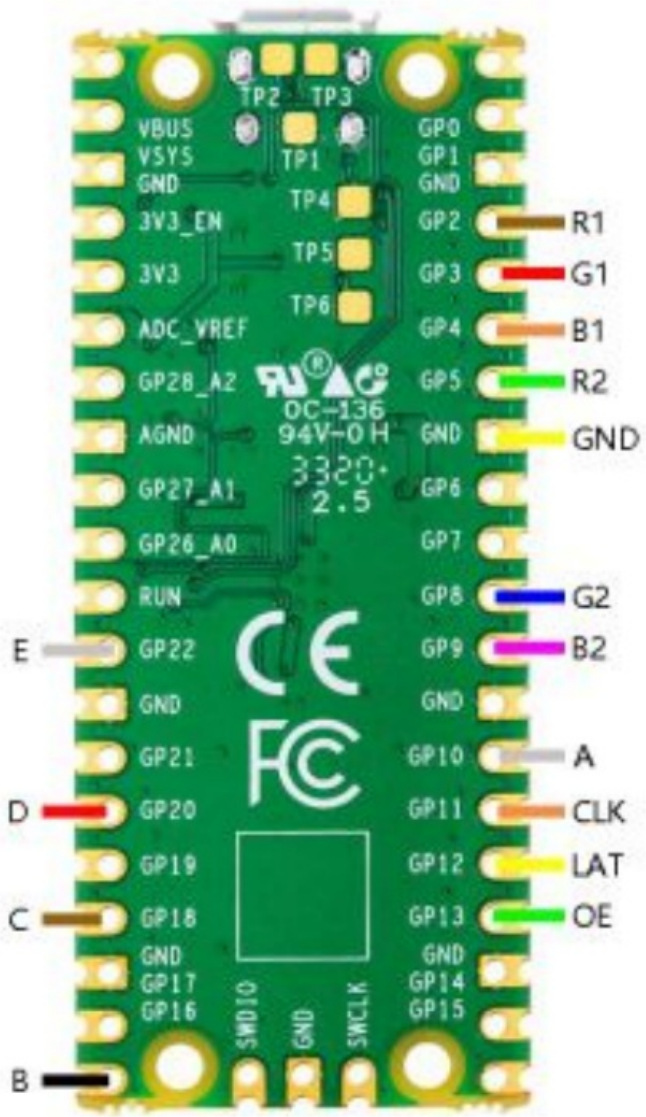
Working With Pico

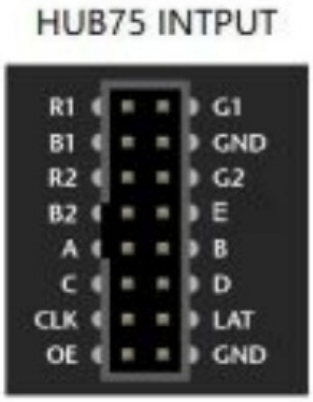
Hardware Connection

Preparation

- RGB-Matrix-P4-64×64
- Raspberry Pi Pico (It must be purchased separately. If not, it is recommended to buy one with soldered pin headers, which is convenient for wiring.)

Diagram





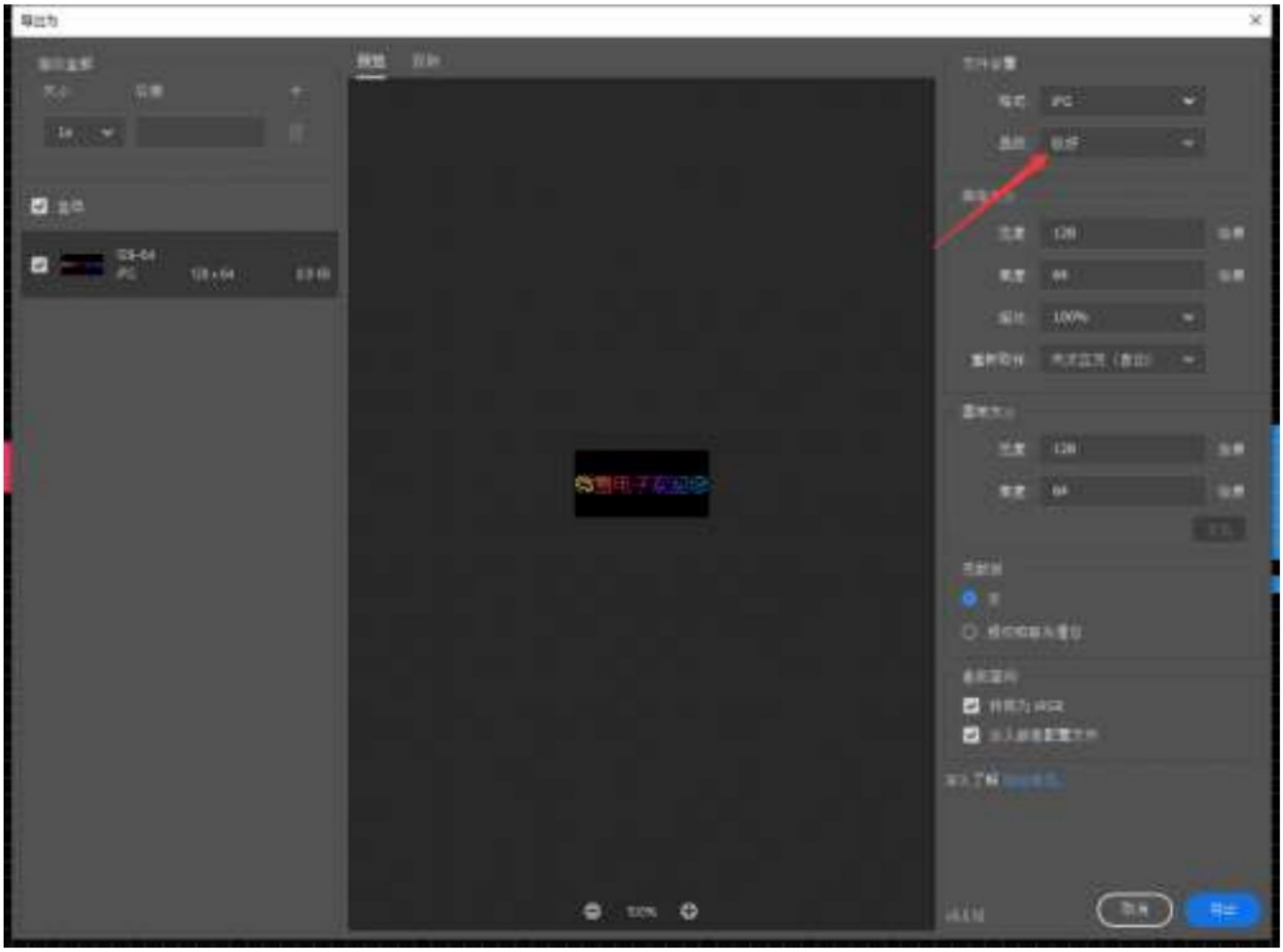
Software Setting

- Download the demo
- After connecting the wire according to the diagram, you can set the software: environment building

Performance

- After setting up the CircuitPython environment, you can copy all the contents of the CircuitPython directory in the downloaded Pico example to the recognized U flash drive, and you can run the example (there are 16 demos in this code).

- The PSD folder is a file in ".psd" format, which can be used to modify the text image that needs to be moved. The modified image needs to be saved as "Excellent" and the format needs to be converted to BMP format.



Function

- Display text
- Set scrolling effect

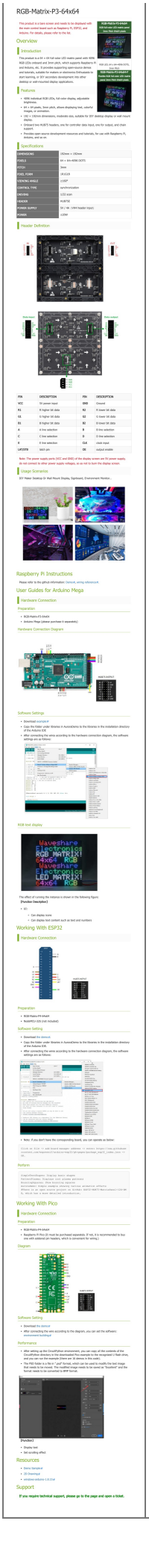
Resources

- Demo Sample
- 2D Drawing
- windows-arduino-1.8.15

Support

If you require technical support, please go to the page and open a ticket.

Documents / Resources



RGB-Matrix-P3-64x64

This product is a bare screen and needs to be displayed with the main control board such as Raspberry Pi, ESP32, and Arduino. For details, please refer to the list.

Overview

Introduction

This product is a 64 × 64 full-color LED matrix panel with 4096 RGB LEDs onboard and 3mm pitch, which supports Raspberry Pi and Arduino, etc. It provides supporting open-source demos and tutorials, suitable for makers or electronics DIYenthusiasts to start learning, or DIY secondary development into other desktop or wall-mounted display applications.

Features

- 4096 individual RGB LEDs, full-color display, adjustable brightness.
- 64 × 64 pixels, 3mm pitch, allows displaying text, colorful images, or animation.
- 192 × 192mm dimensions, moderate size, suitable for DIY desktop display or wall mount display.
- Onboard two HUB75 headers, one for controller data input, one for output, and chain them up.
- Provides open-source development resources and tutorials, for use with Raspberry Pi, Arduino, and so on.

Specifications

DIMENSIONS	192mm × 192mm
PIXELS	64 × 64=4096 DOTS
PITCH	3mm
PIXEL FORM	1R1G1B
VIEWING ANGLE	±150°
CONTROL TYPE	synchronization
DRIVING	1/32 scan
DRIVER	HUB75E
POWER SUPPLY	5V / 4A（4W Heater input）
POWER	≥20W

Header Definition

PIN	DESCRIPTION	PIN	DESCRIPTION
VCC	5V power input	GND	Ground
R1	R higher 5R data	R2	R lower 5R data
G1	G higher 5R data	G2	G lower 5R data
B1	B higher 5R data	B2	B lower 5R data
A	A line selection	B	B line selection
C	C line selection	D	D line selection
E	E line selection	CLK	clock input
LAT/STB	latch pin	OE	output enable

Note: The power supply ports (VCC and GND) of the display screen are 5V power supply. Do not connect to other power supply voltages, so as not to burn the display screen.

Usage Scenarios

DIY Make Desktop Or Wall Mount Display, Signboard, Environment Monitor...

Raspberry Pi Instructions

Please refer to the github information: Demo4, wiring reference.

User Guides for Arduino Mega

Hardware Connection

Preparation

- RGB-Matrix-P3-64x64
- Arduino Mega (please purchase it separately)

Hardware Connection Diagram

Software Settings

- Download example
- Copy the folder under libraries in AuroraDemo to the libraries in the installation directory of the Arduino IDE
- After connecting the wires according to the hardware connection diagram, the software settings are as follows:

RGB text display

The effect of running the Instance is shown in the following figure:

[Function Description]

- GIF
  - Can display icons
  - Can display text content such as text and numbers

Working With ESP32

Hardware Connection

Preparation

- RGB-Matrix-P4-64x64
- RGBMTCS-S2S (not included)

Software Setting

- Download the demo.zip.
- Copy the folder under libraries in AuroraDemo to the libraries in the installation directory of the Arduino IDE
- After connecting the wires according to the hardware connection diagram, the software settings are as follows:

- Note: If you don't have the corresponding board, you can operate as below:

```
Click on File -> Add board manager address -> Enter https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package_esp32_index.json ->
OK
```

Perform

```
Flag1=ThreeDegrees Display basic demos
Value1=Square: Display cool screen pattern
Blocks=Sphere: Show bloating squares
Flag2=Cube: Display rotating cube screen animation effects
Where is an open source project on Github: WAVESHARE/Waveshare-rlcd-demo, which has a more detailed introduction.
```

Working With Pico

Hardware Connection

Preparation

- RGB-Matrix-P4-64x64
- Raspberry Pi Pico (It must be purchased separately. If not, it is recommended to buy one with soldered pin headers, which is convenient for wiring.)

Diagram

Software Setting

- Download the demo.rar
- After connecting the wire according to the diagram, you can set the software:
  environment building.gif

Performance

- After setting up the CircuitPython environment, you can copy all the contents of the folder pico\Screen_Driver\example\Pico\ to the root directory of the recognized U flash drive, and you can run the example (there are 3 demos in this case).
- The PSD folder is a file in ".psd" format, which can be used to modify the text image that needs to be moved. The modified image needs to be saved as "ScrollText" and the format needs to be converted to BMP format.

[Function]

- Display text
- Set scrolling effect

Resources

- Demo Samples
- I2C Drawings
- windows-arduino-1.8.13.rar

Support

If you require technical support, please go to the page and open a ticket.

[WAVESHARE P3-64x64 RGB Full Color LED Matrix Panel] [pdf] Instruction Manual

P3-64x64 RGB Full Color LED Matrix Panel, P3-64x64, RGB Full Color LED Matrix Panel, Color LED Matrix Panel, LED Matrix Panel, Matrix Panel, Panel

References

- rcontent.com
- GitHub - hzeller/rpi-rgb-led-matrix: Controlling up to three chains of 64x64, 32x32, 16x32 or similar RGB LED displays using Raspberry Pi GPIO
- rpi-rgb-led-matrix/wiring.md at master · hzeller/rpi-rgb-led-matrix · GitHub
- File:Arduino-Mega-hw-connect-RGB-Matrix02.jpg - Waveshare Wiki
- File:Arduino-Mega-RGB-Matrix-EN.jpg - Waveshare Wiki
- File:RGB-Matrix-P3-64x32-details-07.jpg - Waveshare Wiki
- File:RGB-Matrix-P3-64x64-2.png - Waveshare Wiki
- File:RGB-Matrix-P3-64x64-details05.jpg - Waveshare Wiki
- File:RGB-Matrix-P3-64x64-F-details-3.jpg - Waveshare Wiki
- File:RGB-Matrix-P3-64x64-F.jpg - Waveshare Wiki
- File:RGB-Matrix-P3-64x642.png - Waveshare Wiki
- File:RGB-Matrix-P4-64x32 ESP32.jpg - Waveshare Wiki
- File:RGB-Matrix-P4-64x32 ESP3202.jpg - Waveshare Wiki
- File:RGB-Matrix-P4-64x32 Pico.jpg - Waveshare Wiki
- File:RGB-Matrix-P4-64x32 Pico02.png - Waveshare Wiki
- Waveshare Wiki
- Pico-CircuitPython-Manual - Waveshare Wiki
- RGB-Matrix-P3-64x64-F - Waveshare Wiki
- User Manual