

# FPIOA Pinout

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## Preface

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The pins of K230 support FPIOA (Field Programmable Input and Output Array)

FPIOA can be simply understood as allowing a certain pin on the K230 to be multiplexed into multiple functions such as uart, iic, pwm, etc. at the hardware level.

FPIOA (also called IOMUX) mainly configures the functions of physical PADs (pins). Since SoCs have many functions but few pins (pads), multiple functions share the same I/O pins (pads), but a pad can only use one function at a time, so IOMUX is needed for function selection.

Note: This section mainly introduces the theory and operation of FPIOA. When studying the actual chapters later, we can more directly experience the actual usage and function of FPIOA.

## FPIOA Common Methods

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The source code is located in [Source Code/02.Basic/01.fpioa.py] and execute the following code

```
from machine import FPIOA

# Instantiate FPIOA
fpioa = FPIOA ()

# Print all pin configurations
fpioa.help ()

# Print the detailed configuration of the specified pin
fpioa.help ( 0 )

# Print all available configuration pins for the specified function
fpioa . help ( FPIOA . IIC0_SDA , func = True )

# Get the pin where the specified function is currently located
fpioa . get_pin_num ( FPIOA . UART0_TXD )

# Get the current function of the specified pin
fpioa.get_pin_func ( 0 )
```

You can see that in the serial terminal, all the IO ports of the K230 chip and the functions that support multiplexing are output

```

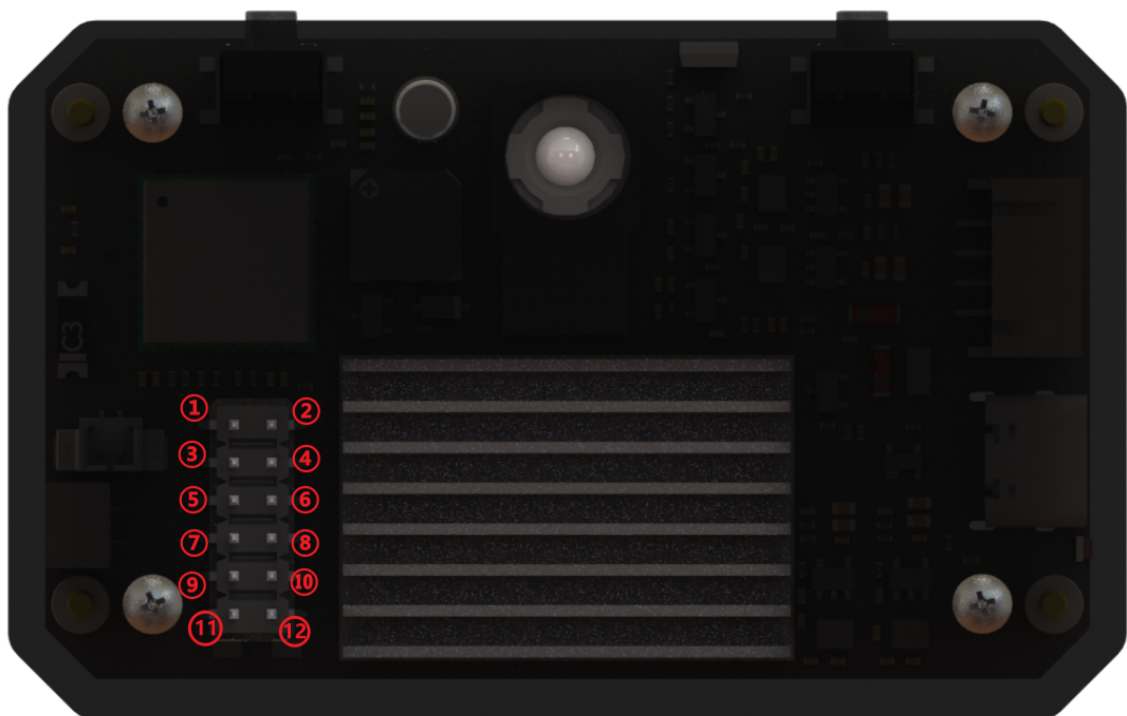
40 | GPIO40 | GPIO40/UART1_TXD/IIC1_SCL/QSPI1_D0/RESV/
41 | GPIO41 | GPIO41/UART1_RXD/IIC1_SDA/QSPI1_D1/RESV/
42 | GPIO42 | GPIO42/UART1_RTS/PWM0/QSPI1_D2/RESV/
43 | GPIO43 | GPIO43/UART1_CTS/PWM1/QSPI1_D3/RESV/
44 | IIC3_SCL | GPIO44/UART2_TXD/IIC3_SCL/RESV/SPI2AXI_CK/
45 | IIC3_SDA | GPIO45/UART2_RXD/IIC3_SDA/RESV/SPI2AXI_CS/
46 | GPIO46 | GPIO46/UART2_RTS/PWM2/IIC4_SCL/RESV/
47 | GPIO47 | GPIO47/UART2_CTS/PWM3/IIC4_SDA/RESV/
48 | GPIO48 | GPIO48/UART4_TXD/RESV/IIC0_SCL/SPI2AXI_DI/
49 | GPIO49 | GPIO49/UART4_RXD/RESV/IIC0_SDA/SPI2AXI_DO/
50 | GPIO50 | GPIO50/UART3_TXD/IIC2_SCL/QSPI0_CS4/RESV/
51 | GPIO51 | GPIO51/UART3_RXD/IIC2_SDA/QSPI0_CS3/RESV/
52 | GPIO52 | GPIO52/UART3_RTS/PWM4/IIC3_SCL/RESV/
53 | PWM5 | GPIO53/UART3_CTS/PWM5/IIC3_SDA/
54 | MMC1_CMD | GPIO54/QSPI0_CS0/MMC1_CMD/PWM0/RESV/
55 | MMC1_CLK | GPIO55/QSPI0_CLK/MMC1_CLK/PWM1/RESV/
56 | MMC1_D0 | GPIO56/QSPI0_D0/MMC1_D0/PWM2/RESV/
57 | MMC1_D1 | GPIO57/QSPI0_D1/MMC1_D1/PWM3/RESV/
58 | MMC1_D2 | GPIO58/QSPI0_D2/MMC1_D2/PWM4/RESV/
59 | MMC1_D3 | GPIO59/QSPI0_D3/MMC1_D3/PWM5/
60 | GPIO60 | GPIO60/PWM0/IIC0_SCL/QSPI0_CS2/HSYNC1/
61 | GPIO61 | GPIO61/PWM1/IIC0_SDA/QSPI0_CS1/VSNC1/
62 | GPIO62 | GPIO62/M_CLK2/UART3_DE/RESV/
63 | M_CLK3 | GPIO63/M_CLK3/UART3_RE/RESV/
|pin num |0
|current config |GPIO0,ie:1,oe:1,pd:0,pu:0,msc:1-1.8v,ds:7,st:1,sl:0,di:1
|can be function |GPIO0/B00T0/RESV/
IIC0_SDA function can be set to PIN33, PIN49, PIN61
MPY: soft reboot
CanMV v1.2.3-25-g5ce89f5f(based on Micropython e00a144) on 2025-03-29; k230_canmv_yahboom with K

```

## YAHBOOM K230 Pinout

In order to reduce the size of the module, our K230 module does not bring out all the pins supported by the chip. Let's take a look at some of the commonly used pins of YAHBOOM K230

1. Two rows of pins next to the heat sink



- 1: GPIO 42, can be reused as: GPIO42 / UART1\_RTS / PWM0 / QSPI1\_D2 / RESV /
- 2: GPIO 43, can be reused as: GPIO43 / UART1\_CTS / PWM1 / QSPI1\_D3 / RESV /
- 3: GPIO 33, can be reused as: GPIO33 / IIC0\_SDA / IIS\_WS / UART3\_RXD / RESV /

4: GND

5: GPIO 32, can be reused as: GPIO32 / IIC0\_SCL / IIS\_CLK / UART3\_TXD / RESV /

6: GPIO 26, can be reused as: GPIO26 / MMC1\_CLK / RESV / PDM\_CLK /

7: GND

8: GPIO 34, can be reused as: GPIO34 / IIC1\_SCL / IIS\_D\_IN0 / PDM\_IN3 / UART3\_RTS /

9: 5v output

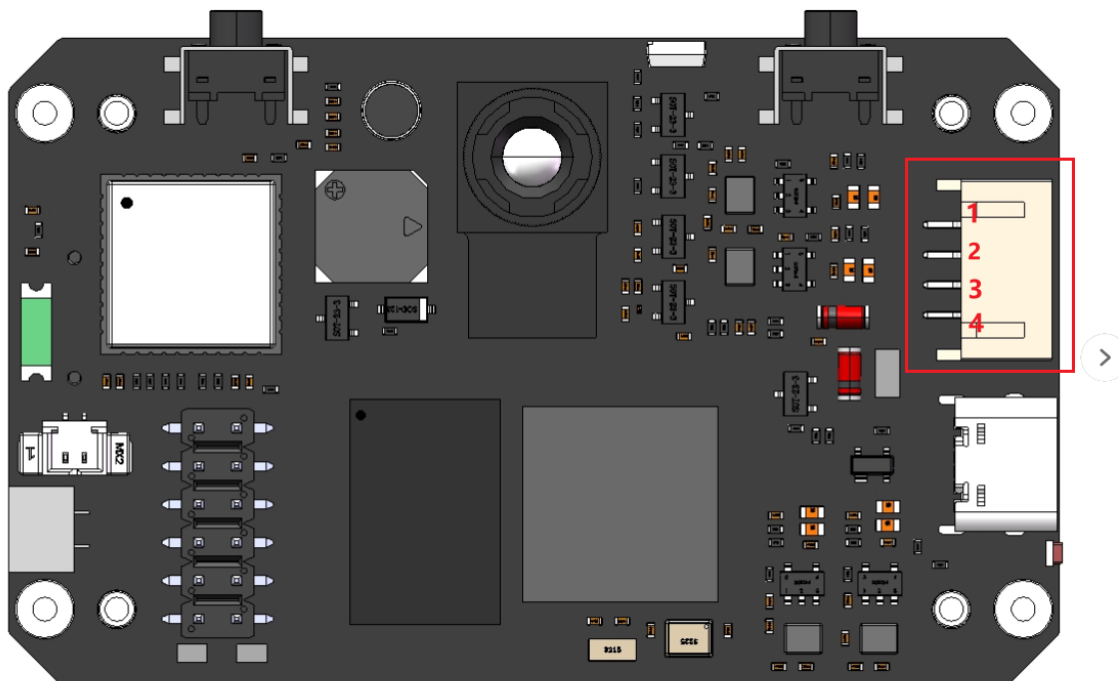
10: GPIO 35, can be reused as: GPIO35 / IIC1\_SDA / IIS\_D\_OUT0 / PDM\_IN1 / UART3\_CTS /

11: 5v output

12: 3.3v output

!!! When connecting the 12-pin GPIO, please be sure to confirm the silk-screen mark to ensure the correct connection. We will not provide after-sales repair service for man-made damage caused by short circuit, reverse connection, overvoltage or overcurrent.  
!!!

## 2. Communication interface next to the USB port



1: 5v

2: GND

3: UART1\_TXD | Can be reused as GPIO9 / PWM4 / UART1\_TXD / IIC1\_SCL / RESV/

4: UART1\_RXD | Can be reused as GPIO10 / CTRL\_IN\_3D / UART1\_RXD / IIC1\_SDA / RESV/

The communication interface defaults to serial port UART1. The initialization code in the YbUart module is as follows

```
fpioa.set_function(9, fpioa.UART1_TXD, ie=0, oe=1)
fpioa.set_function(10, fpioa.UART1_RXD, ie=1, oe=0)
uart = UART(UART.UART1, baudrate)
```

- For the complete official documentation of FPIOA, please refer to [2.8 FPIOA Module API Manual — CanMV K230](#)

