

# W806 Chip Design Guide

V1.0

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## 1 Overview

The W806 chip is a secure IoT MCU chip. The chip integrates a 32-bit CPU processor with built-in UART, GPIO, SPI, SDIO,

I2C, I2S, PSRAM, 7816, ADC, LCD, TouchSensor and other digital interfaces; support TEE security engine, support a variety of hardware

Decryption algorithm, built-in DSP, floating-point arithmetic unit and security engine, support code security permission setting, built-in 1MB Flash memory, support

Firmware encrypted storage, firmware signature, security debugging, security upgrade and other security measures to ensure product security features. Suitable for small appliances, smart

It can be used in a wide range of IoT fields such as home furnishing, smart toys, industrial control, and medical monitoring.

## 2 Pin Definition

Figure 2-1 Pin layout (QFN56)

Table 2-1 Pin Assignment Definition (QFN56)

No.	Name	Type	Pin function after reset	Alternate function	Maximum frequency	Pull-up and pull-down capability	Drive capability
1	PB_18	I/O	GPIO, input, high impedance	UART5_TX/LCD_SEG30	10MHz	UP/DOWN	12mA
2	PB_26	I/O	GPIO, input, high impedance	LSPI_MOSI/PWM4/LCD_SEG1	20MHz	UP/DOWN	12mA
3	PB_25	I/O	GPIO, input, high impedance	LSPI_MISO/PWM3/LCD_COM0	20MHz	UP/DOWN	12mA
4	PB_24	I/O	GPIO, input, high impedance	LSPI_CK/PWM2/LCD_SEG2	20MHz	UP/DOWN	12mA
5	PB_22	I/O	GPIO, input, high impedance	UART0_CTS/PCM_CK/LCD_COM2	10MHz	UP/DOWN	12mA
6	PB_21	I/O	GPIO, input, high impedance	UART0_RTS/PCM_SYNC/LCD_COM1	10MHz	UP/DOWN	12mA
7	PB_20	I/O	UART_RX	UART0_RX/PWM1/UART1_CTS/I2C_SCL	10MHz	UP/DOWN	12mA
8	PB_19	I/O	UART_TX	UART0_TX/PWM0/UART1_RTS/I2C_SDA	10MHz	UP/DOWN	12mA
9	WAKEUP	I	WAKEUP	Wake-up function		DOWN	
10	RESET	I	RESET	Reset		UP	
11	XTAL_OUT	O	External crystal oscillator output				
12	XTAL_IN	I	External crystal input				

13 VDD33 P chip power supply, 3.3V

14 NC

15 VDD33 P chip power supply, 3.3V

16 VDD33 P chip power supply, 3.3V

17 VDD33 P chip power supply, 3.3V

18 BOOTMODE I/O BOOTMODE I2S\_MCLK/LSPI\_CS/PWM2/I2S\_DO 20MHz UP/DOWN 12mA

19 PA\_1 I/O JTAG\_CK

JTAG\_CK/I2C\_SCL/PWM3/I2S\_LRCK/AD

C\_1

20MHz

UP/DOWN

12mA

20 PA\_2 I/O GPIO, input, high impedance

UART1\_RTS/UART2\_TX/PWM0/UART3\_RT

S/ADC\_4

20MHz

UP/DOWN

12mA

21 PA\_3 I/O GPIO, input, high impedance

UART1\_CTS/UART2\_RX/PWM1/UART3\_CT

S/ADC\_3

20MHz

UP/DOWN

12mA

22 PA\_4 I/O JTAG\_SWO

JTAG\_SWO/I2C\_SDA/PWM4/I2S\_BCK/AD

C\_2

20MHz

UP/DOWN

12mA

23 PA\_5 I/O GPIO, input, high impedance

UART3\_TX/UART2\_RTS/PWM\_BREAK/UAR

T4\_RTS/VRP\_EXT

20MHz

UP/DOWN

12mA

24 PA\_6 I/O GPIO, input, high impedance

UART3\_RX/UART2\_CTS/NULL/UART4\_CT

S/LCD\_SEG31/VRP\_EXT

20MHz

UP/DOWN

12mA

25 PA\_7 I/O GPIO, input, high impedance

PWM4/LSPI\_MOSI/I2S\_MCK/I2S\_DI/LC

D\_SEG3/Touch\_1

20MHz

UP/DOWN

12mA

26 PA\_8 I/O GPIO, input, high impedance

PWM\_BREAK/UART4\_TX/UART5\_TX/I2S\_

BCLK/LCD\_SEG4

20MHz

UP/DOWN

12mA

27 PA\_9 I/O GPIO, input, high impedance

MMC\_CLK/UART4\_RX/UART5\_RX/I2S\_LR

CLK/LCD\_SEG5/TOUCH\_2

50MHz

UP/DOWN

12mA

28 PA\_10 I/O GPIO, input, high impedance

MMC\_CMD/UART4\_RTS/PWM0/I2S\_DO/LC

D\_SEG6/TOUCH\_3

50MHz

UP/DOWN

12mA

29 VDD33 P chip power supply, 3.3V

30 PA\_11 I/O GPIO, input, high impedance

MMC\_DAT0/UART4\_CTS/PWM1/I2S\_DI/L

CD\_SEG7

50MHz

UP/DOWN

12mA

31 PA\_12 I/O GPIO, input, high impedance

MMC\_DAT1/UART5\_TX/PWM2/LCD\_SEG8/

TOUCH\_14

50MHz

UP/DOWN

12mA

32 PA\_13 I/O GPIO, input, high impedance MMC\_DAT2/UART5\_RX/PWM3/LCD\_SEG9 50MHz UP/DOWN

12mA

33 PA\_14 I/O GPIO, input, high impedance

MMC\_DAT3/UART5\_CTS/PWM4/LCD\_SEG1

0/TOUCH\_15

50MHz

UP/DOWN

12mA

34 PA\_15 I/O GPIO, input, high impedance

PSRAM\_CK/UART5\_RTS/PWM\_BREAK/LCD  
\_SEG11

50MHz

UP/DOWN

12mA

35 PB\_0 I/O GPIO, input, high impedance

PWM0/LSPI\_MISO/UART3\_TX/PSRAM\_CK  
/LCD\_SEG12/Touch\_4

80MHz

UP/DOWN 12mA

36

PB\_1

I/O GPIO, input, high impedance

PWM1/LSPI\_CK/UART3\_RX/PSRAM\_CS/L  
CD\_SEG13/Touch\_5

80MHz

UP/DOWN 12mA

37

PB\_2

I/O GPIO, input, high impedance

PWM2/LSPI\_CK/UART2\_TX/PSRAM\_D0/L  
CD\_SEG14/Touch\_6

80MHz

UP/DOWN 12mA

38

PB\_3

I/O GPIO, input, high impedance

PWM3/LSPI\_MISO/UART2\_RX/PSRAM\_D1

/LCD\_SEG15/Touch\_7

80MHz

UP/DOWN 12mA

39 PB\_27 I/O GPIO, input