



Ai-WS1-CBE-Kit Specification

Version V1.0.1

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1. Product overview

Ai-WS1-CBE-Kit is a BLE5.2+SLE1.0 module development board developed by Ai-Thinker Co., LTD. It is equipped with Ai-WS1-CBE module, and adopts the design of USB Goldfinger Dongle, and takes Hi3873E chip as the core processor. Supports BLE and SLE. Hi3873E built-in high-performance self-developed 32bit CPU, up to 240MHz main frequency.

Hi3873E chip integrates a high-performance 32bit microprocessor and a security processing engine. Provide UART and GPIO interfaces, while supporting USB2.0 interface, the highest speed of 480Mbps; As a slave machine, the chip is built to the host MCU through USB interface to run.

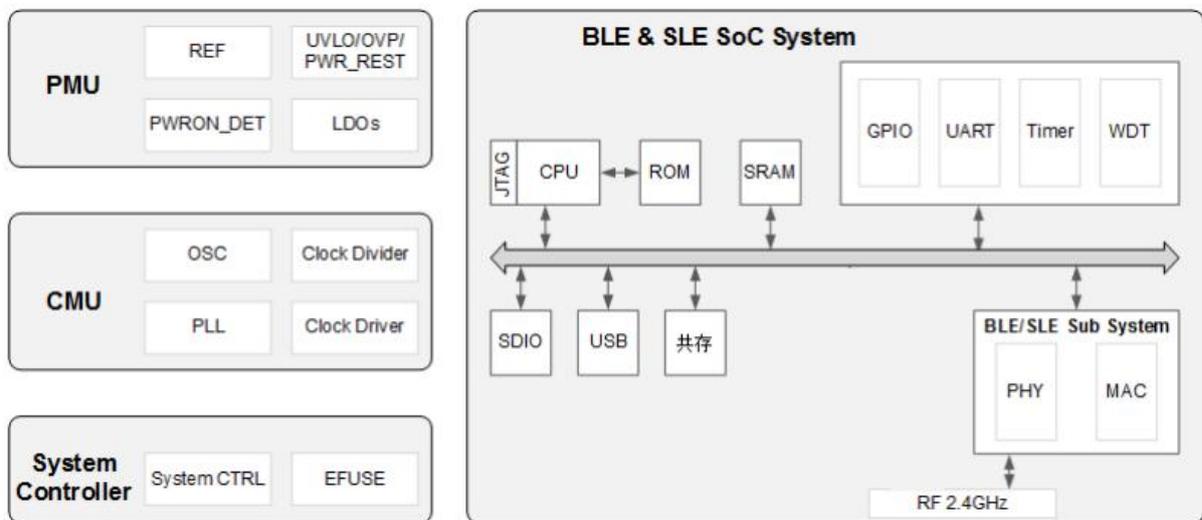


Figure 1 Main chip architecture diagram

1.1. Characteristics

- Adopt USB gold finger design
- Support 2.4GHz operating band
- Support BLE4.0/4.1/4.2/5.0/5.1/5.2
- Support SLE1.0
- Support UART、USB2.0 and GPIO etc.
- Radio Frequency Integrated Balun、PA/LNA

2. Main parameter

Table 1 Description of Main Parameters

Model	Ai-WS1-CBE-Kit
Package	DIP-16
Size	26.0*30.0(±0.2)mm No plug-in section
Antenna	On-Board
Frequency	2400 ~ 2483.5MHz
Operating temperature	-40°C ~ 85°C
Storage temperature	-40°C ~ 125°C, < 90%RH
Power supply	The power supply voltage is 3V to 3.6V, and the power supply current is $\geq 500\text{mA}$
Interface	UART、USB2.0 and GPIO etc.
IO	12
Flash	Without Flash

2.1. Electrostatic requirement

Ai-WS1-CBE-Kit is an electrostatic sensitive device, and special precautions should be taken when handling it.



Figure 2 ESD preventive measures

2.2. Electrical characteristic

Table 2 Table of Electrical Characteristics

Parameters	Conditio	Min.	Typical value	Max.	Unit
Supply voltage	VDD	3	3.3	3.6	V
I/O	VIL	-	-	0.3*VDDIO	V
	VIH	-	0.7*VDDIO	-	V
	VOL	-	-	0.1*VDDIO	V
	VOH	-	-	0.9*VDDIO	V
	IMAX	-	-	-	15

2.3. BLE RF performance

Table 3 BLE RF Performance Table

Description	Typical value			Unit
Spectrum range	2400 ~ 2483.5MHz			MHz
Output power				
Rate mode	Min.	Typical	Max.	Unit
1Mbps	-	15	19	dBm
2Mbps	-	15	19	dBm
Receiving sensitivity				
Rate mode	Min.	Typical	Max.	Unit
1Mbps sensitivity @30.8%PER	-	-99	-	dBm
2Mbps sensitivity @30.8%PER	-	-97	-	dBm

2.4. SLE RF performance

Table 4 RF performance of SLE

Description	Typical value			Unit
Spectrum range	2400 ~ 2483.5MHz			MHz
Output power				
Rate mode	Min.	Typical	Max.	Unit
1Mbps	-	15	19	dBm
2Mbps	-	15	19	dBm
Receiving sensitivity				
Receiving sensitivity	Receiving	Receiving	Receiving	Receiv
1Mbps sensitivity @30.8%PER	-	-99	-	dBm
2Mbps sensitivity @30.8%PER	-	-97	-	dBm

3. Appearance size

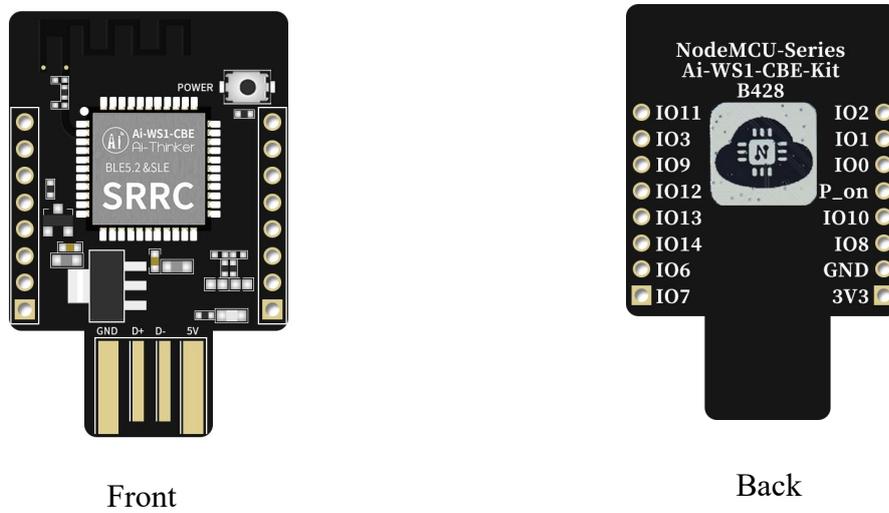


Figure 3 appearance diagram(Rendering diagram is for reference only, subject to actual objects)

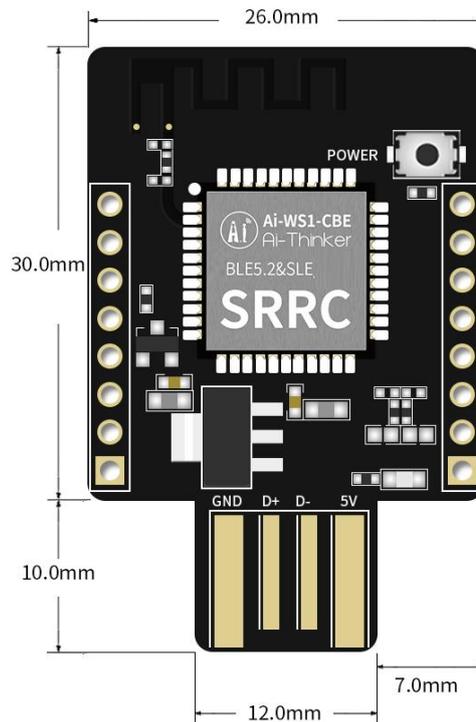


Figure 4 dimension diagram

4. Pin definition

A total of 16 pins are connected to the Ai-WS1-CBE-Kit development board, such as the pin diagram, and the pin function definition table is the interface definition.

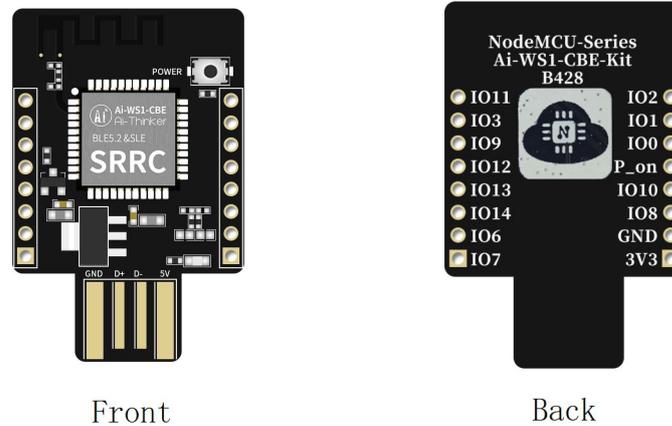


Figure 5 Pin diagram

Table 5 Pin function definition table

No.	Name	Functional description
1	IO2	GPIO2
2	IO1	GPIO1
3	IO0	GPIO0
4	P_on	Boot pin
5	IO10	GPIO10
6	IO8	GPIO8
7	GND	Ground
8	3V3	3.3V power supply. The recommended output current of the external power supply is more than 500mA
9	IO7	GPIO7
10	IO6	GPIO6
11	IO14	GPIO14
12	IO13	GPIO13
13	IO12	GPIO12
14	IO9	GPIO9
15	IO3	GPIO3
16	IO11	GPIO11

Ai-WS1-CBE-Kit development board has a key, which is the POWER key and plays a reset role.

5. Schematic diagram

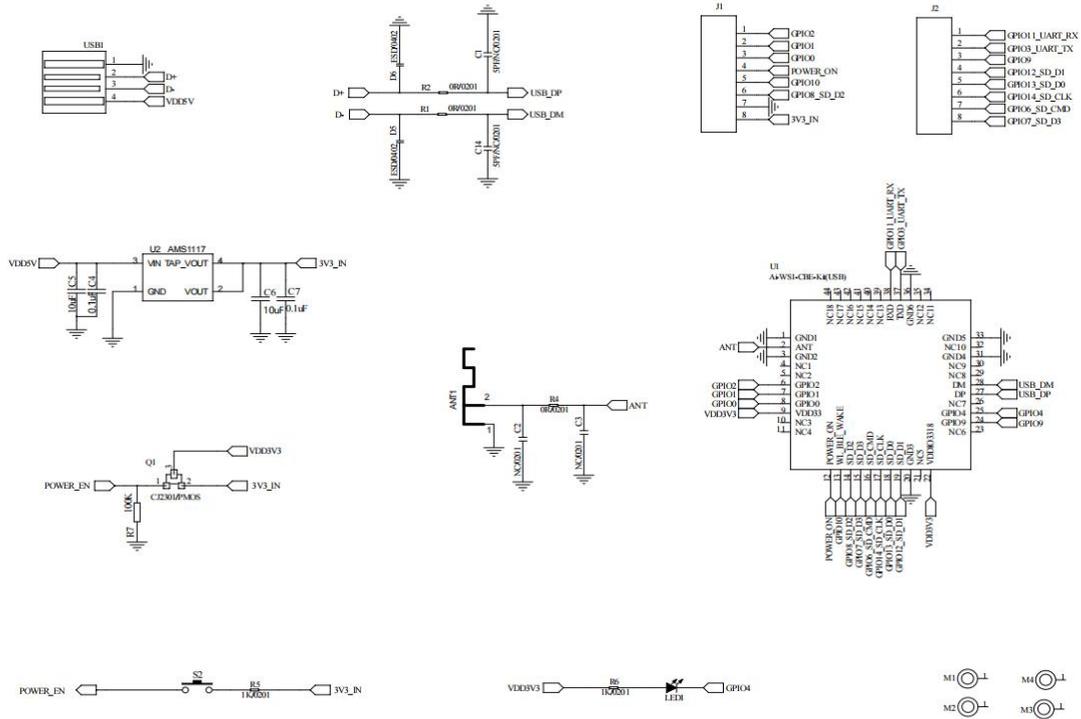


Figure 6 Schematic Diagram

6. Product packaging information

Table 6 Packaging information table

Packing List	Package	Quantity per packet (Electrostatic bag)	Quantity per packet (Sealed bag)
Ai-WS1-CBE-Kit	Foam + electrostatic bag	1pcs	20pcs

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