CHINA DRAGO TECHNOLOGY LIMITED

SPECIFICATIONS

Version：V1.0

Date：2011.3.31

MODEL NAME: CDT-D25931BT-00

PRODUCT NAME : WIFI+BT Module

DESIGN：_____ CHECK：_____ APPROVAL：_____

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Cdtech 中龙通		DOCUMENT No :
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Change History of Revision

Revisio	Date	Contents of Revision Change	Remark
1.0	2011.3.31	First release	S.heng

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1.Introduction

CDT-D25931BT-00 is a new generation of embedded CDT-Wifi products module.

CDT-Wifi is based on CDT interface, accord with Wifi wireless network standard embedded module, the built-in wireless network protocol IEEE802.11 protocol stack, and TCP/IP protocol stack, save electricity intelligent control procedures

Can realize, the user serial data to the wireless network conversion between.

Through the CDT-Wifi module, the traditional serial equipment also can easily access wireless network.

CDT-D25931BT-00 is in the first two generations of products based on top, and carries on the comprehensive hardware and software upgrades, function more powerful, use more simple, lower power consumption In the original foundation above the intelligent current control program upgrade, than the former two generation product province electricity above 40%.

In temperature compensation, the application of the latest software automatic control technology, automatic temperature adjustment, and will not affect the data transmission, it solves the traditional product, because the temperature too high, cause data loss, frequent fall nets, etc

2.Namingrules:

CDT - D 2 5931BT-00

- 产品代号 ：
  01 、 02 、 03
- 芯片名称 ：
  BT: MTK6622 5572: Ralink5572
  8188T: Realtek8188CTV 8188E: Realtek8188CE
  5370B: Ralink5370B 5931: MTK5931
- 接口类型 ：
  0:USB 接口
  1:MINIPCIE 接口 2:SDIO 接口
- 外形尺寸类:
  A. .. B C D E
  F G H I J
- 中龙通产品标识

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3. Features

CDT-D25931BT-00 is the small size and low power module for IEEE 802.11b/g/n wireless LAN. CDT-D25931BT-00 is based on Media Tek 5931 and 6622 solution.

IEEE 802.11 a/b/g/n Dual Band WLAN infrastructure

Size : 14.5mm x 14.5mm x 1.2mm

2.4GHz internal PA

Two stream spatial multiplexing up to 300Mbps

PIFA ANT (1T1R MIMO)

Use on-chip OTP (One-Time Programmable)

WIFI: SDIO 2.0(4Bit) BT: UART PCM2.0

Supports drivers for Windows Vista, 2000, XP, Linux

Security : WPA,WPA2,AES(TKIP) ,WPS2.0，WAPI

• Application: Smart phones, tablet PC,MID,PND,PMP, Portable Gaming Devices

4. Ordering Information

Model	Description
CDT-D25931BT-00	Wi-Fi Module, Single Band 1T21 MIMO

5. Label marking

① Model No

② MAC Address BAR Code

③ MAC Address No.

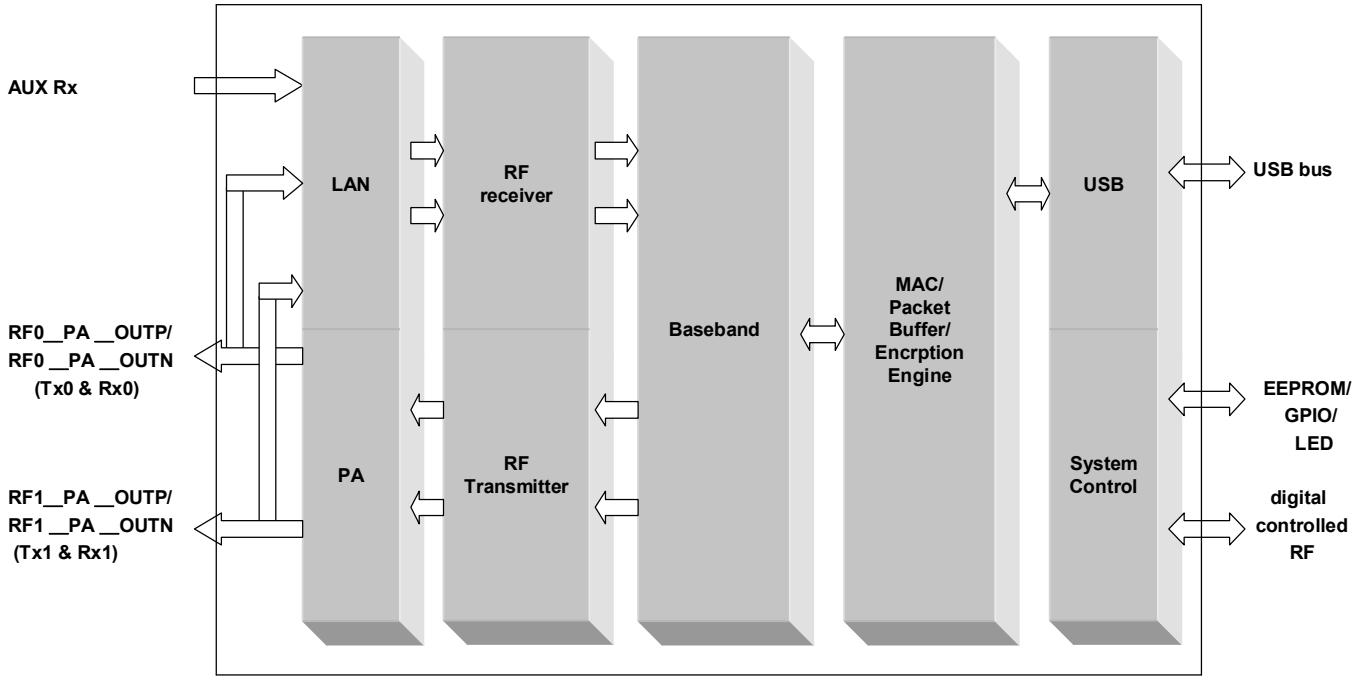
④ Product Lot No. : 1110A0401

-11 : Year - 02 : Date

- 11: Month - 01 : Manufactured

- Revision No. : A Process

6. Block Diagram



< Fig.1 Hardware Block Diagram >

7. Absolute Maximum Ratings

Caution : The specifications in Table 1 define levels at which permanent damage to the device can occur. Function operation is not guaranteed under these conditions. Operating at absolute maximum conditions for extend periods can adversely affect the long-term reliability of the device.

Parameter	Min	Max	Unit
Storage Temperature	-10	+80℃	℃
Storage Humidity (40℃)	-	90%	%

< Table 1 Absolute Maximum Ratings > . Other conditions

1) Do not use or store modules in the corrosive atmosphere, especially where chloride gas, sulfide gas, acid, alkali, salt or the like are contained. Also, avoid exposure to moisture.

2) Store the modules where the temperature and relative humidity do not exceed 5 to 40℃ and 20 to 60%.

3) Assemble the modules within 6 months.
Check the soldering ability in case of 6 months over.

8. Operating Conditions

Parameter		Min	Typ	Max	Unit
Operating Temperature		0	-	+60	℃
Operating Humidity		-	-	85	%
Supply Voltage1	_VBAT_	3.3	3.4	3.5	V
Supply Voltage1	VBAT(BT)	2.6+	2.8	3.0	V

9. Standard Test Conditions

The Test for electrical specification shall be performed under the following condition unless otherwise specified.

1). Ambient condition

Temperature :25℃ ± 5℃

. Humidity:65% ± 5% R.H.

2). Power supply voltages

5V (±5%) input power at the Module

3). Current consumption over recommended range of supply voltage and operating

conditions is like below.

When it's tested, it must be supplied more than 2 times of maximal current.

10. Electrical Specifications

1) DC Characteristics

Current Consumption	Min.	Typ.	Max.	Unit
TX Mode (MCS7)	-	70	-	mA
Idle and Associated state	-	6	-	
Radio disabled state	-	20	-	

2) RF Characteristics for IEEE802.11b (11Mbps mode unless otherwise specified)

Items	Contents			
Specification	IEEE802.11b			
Mode	DSSS/CCK			
Channel frequency	2400 ~ 2483 MHz			
Data rate	1,2,5.5,11Mbps			
TX Characteristics	**Min.**	**Typ.**	**Max.**	**Unit**
Power Level	13	15	18.5	dBm
Spectrum Mask				
1st side lobes (to fc ±11MHz)	-	-43	-30	dBr
2nd side lobes (to fc ±22MHz)	-	-58	-50	dBr
Modulation Accuracy (EVM)	-	30	30	%
Power On/Off ramp	-	0.5	2.0	Usec
Freq. Tolerance	-15	-	15	ppm
Chip Clock Freq. Tolerance	-15	-	15	ppm
RX Characteristics	**Min.**	**Typ.**	**Max.**	**Unit**
Minimum Input Level Sens (FER ≤ 8%)	-96		-88	dBm
Maximum Input Level (FER ≤ 8%)	-10	-	-	dBm

* Normal Condition : 25℃, VDD=3.3/5V.

3) RF Characteristics for IEEE802.11g (54Mbps mode unless otherwise specified)

Items	**Contents**			
Specification	IEEE502.11g			
Mode	OFDM			
Channel frequency	2400 ~ 2483 MHz			
Data rate	6,9,12,18,24,36,48,54Mbps			
TX Characteristics	**Min.**	**Typ.**	**Max.**	**Unit**
Power Level	13	15.5	17	dBm
Spectrum Mask				
at fc ±11MHz	-	-32	-20	dBr
at fc ±20MHz	-	-43	-28	dBr
at fc ≥ ± 30MHz	-	-48	-40	dBr
Constellation Error (EVM)	-	-34	-25	dB
Freq. Tolerance	-15	-	15	ppm
Chip Clock Freq. Tolerance	-15	-	15	ppm
RX Characteristics	**Min.**	**Typ.**	**Max.**	**Unit**
Minimum Input Level Sens. (PER ≤ 10%)	-	-75		ppm
Maximum Input Level (PER ≤ 10%)	-20	-		ppm

*Normal Condition : 25℃, VDD=3.3/5V

4) RF Characteristics for IEEE802.11a (54Mbps mode unless otherwise specified)

Items	**Contents**			
Specification	IEEE802.11a			
Mode	OFDM			
Channel frequency	5150~5650MHz, 5725 ~ 5850 MHz			
Data rate	6,9,12,18,24,36,48,54Mbps			
TX Characteristics	**Min.**	**Typ.**	**Max.**	**Unit**
Power Level	11	13.5	15	dBm
Spectrum Mask				
at fc ±11MHz	-	-32	-20	dBr
at fc ±20MHz	-	-43	-28	dBr
at fc ≥ ± 30MHz	-	-48	-40	dBr
Constellation Error (EVM)	-	-34	-25	dB
Freq. Tolerance	-15	-	15	ppm
Chip Clock Freq. Tolerance	-15	-	15	ppm
RX Characteristics	**Min.**	**Typ.**	**Max.**	**Unit**
Minimum Input Level Sens. (PER ≤ 10%)	-	-75	-65	ppm
Maximum Input Level (PER ≤ 10%)	-30	-		ppm

5) RF Characteristics for IEEE802.11an (MCS7 mode unless otherwise specified)

Items	**Contents**			
Specification	IEEE802.11n - 5GHz			
Mode	OFDM			
Channel frequency	5150~5650MHz, 5725 ~ 5850 MHz			
Data rate	6513195263952585,65Mbps.,,.,,,,.			
TX Characteristics	**Min.**	**Typ.**	**Max.**	**Unit**
Power Level	11	13	15	dBm
Spectrum Mask				
at fc ±11MHz	-	-32	-20	dBr
at fc ±20MHz	-	-35	-28	dBr
at fc ≥ ± 30MHz	-	-45	-40	dBr
Constellation Error (EVM)	-	-32	-28	dB
Freq. Tolerance	-15	-	15	ppm
Chip Clock Freq. Tolerance	-15	-	15	ppm
RX Characteristics	**Min.**	**Typ.**	**Max.**	**Unit**
Minimum Input Level Sens.(HT20,PER ≤ 10%)	-	-71	-64	ppm
Minimum Input Level Sens.(HT40,PER ≤ 10%)	-30	-68	-61	ppm
Maximum Input Level (PER ≤ 10%)	-30			ppm

6) RF Characteristics for IEEE802.11gn (MCS7 mode unless otherwise specified)

Items	**Contents**			
Specification	IEEE802.11n - 2.4GHz			
Mode	OFDM			
Channel frequency	2400 ~ 2483 MHz			
Data rate	6513195263952585,65Mbps.,,.,,			
TX Characteristics	**Min.**	**Typ.**	**Max.**	**Unit**
Power Level	13	15	17	dBm
Spectrum Mask				
at fc ±11MHz	-	-32	-20	dBr
at fc ±20MHz	-	-35	-28	dBr
at fc ≥ ± 30MHz	-	-45	-40	dBr
Constellation Error (EVM)	-	-32	-28	dB
Freq. Tolerance	-15	-	15	ppm
Chip Clock Freq. Tolerance	-15	-	15	ppm
RX Characteristics	**Min.**	**Typ.**	**Max.**	**Unit**
Minimum Input Level Sens.(HT20,PER ≤ 10%)	-	-71	-64	ppm
Minimum Input Level Sens.(HT40,PER ≤ 10%)		-70	-62	ppm
Maximum Input Level (PER ≤ 10%)	-20			ppm

12.Bluetooth Specification

Bluetooth Specification Conditions : VBAT=2.8V ; Temp:25°C

Feature	**Description**		
General Specification			
Bluetooth Standard	Bluetooth V3.3 of 1, 2 and 3 Mbps.		
Host Interface	UART		
Antenna Reference	Small antennas with 0~2 dBi peak gain		
Frequency Band	2.400 GHz ~ 2483.5 GHz		
Number of Channels	79 channels		
Modulation	FHSS, GFSK, DPSK, DQPSK		
RF Specification			
	Min.	**Typical.**	**Max.**
Output Power (Class 1.5)		10	
Output Power (Class 2)		2	
Sensitivity @ BER=0.1% for GFSK (1Mbps)		-86	
Sensitivity @ BER=0.01% for π/4-DQPSK (2Mbps)		-86	
Sensitivity @ BER=0.01% for 8DPSK (3Mbps)		-80	
Maximum Input Level	GFSK (1Mbps):-20dBm		
	π/4-DQPSK (2Mbps) :-20dBm		
	8DPSK (3Mbps) :-20dBm		

11. Environment Tests

Item	Test Conditions	Specifications
Heat Load	Initial values are measured at standard test condition. Leave samples in 60℃±2℃ for 96 ±5 hours, and in standard test condition for 30 minutes, then take measurements within 1 hour. - Supply voltage : standard ± 5% - Supply voltage cycle : 1.5h on, 0.5h off	•TX Power : ±4dB Max Min Input Level : ±4dB Max
Humidity Load Test	Initial values are measured at standard test condition. Leave samples in 40℃±5℃, 90 ~ 95% RH for 96 ±5 hours, and in standard test condition for 30 minutes, then take measurements within 1 hour. - Supply voltage : standard + 5% - Supply voltage cycle : 1.5h on, 0.5h off	
Cold Test	Initial values are measured at standard test condition. Leave samples in －10℃ ±2℃ for 96 ±5 hours, and in standard ambient for 1 hour with standard power Supply then take measurements within 1 hour.	
Temperature	Take measurements in standard test condition. Temp. : -10℃ ~ +80℃ Duration : 30 min Ramp-up & Ramp-down for 5 min Cycle : 100cycle	

12. Pin Description

Terminal NO.	Terminal Name	Terminal Voltage
1	SYSRST_B	
2	WIFI_EN	
3	BT_PRI	
4	NC	
5	SRCLKENA	
6	RESET_N	BT_RESET
7	GND	
8	BT_EINT	
9	NC	
10	VBAT	3.4V
11	SD_DAT0	SDIO
12	SD_DAT2	SDIO
13	SD_CLK	SDIO
14	SD_CMD	SDIO
15	SD_DAT1	SDIO
16	SD_DAT3	SDIO
17	UTXD	UART
18	URXD	UART
19	NC	

20	NC	
21	NC	
22	NC	
23	GND	
24	NC	
25	NC	
26	NC	
27	GND	
28	NC	
29	32KHZ	
30	NC	
31	NC	
32	GND	
33	BT_PWR_EN	BT_PMU_EN
34	NC	
35	NC	
36	NC	

37	NC	
38	NC	
39	PCMCLK	PCM
40	PCMOUT	PCM
41	PCMIN	PCM
42	PCMSYNC	PCM
43	NC	
44	GND	
45	WIFI_ANT	WIFI_RFPORT
46	FSOURCE	
47	BT2WIFI	
48	GND	

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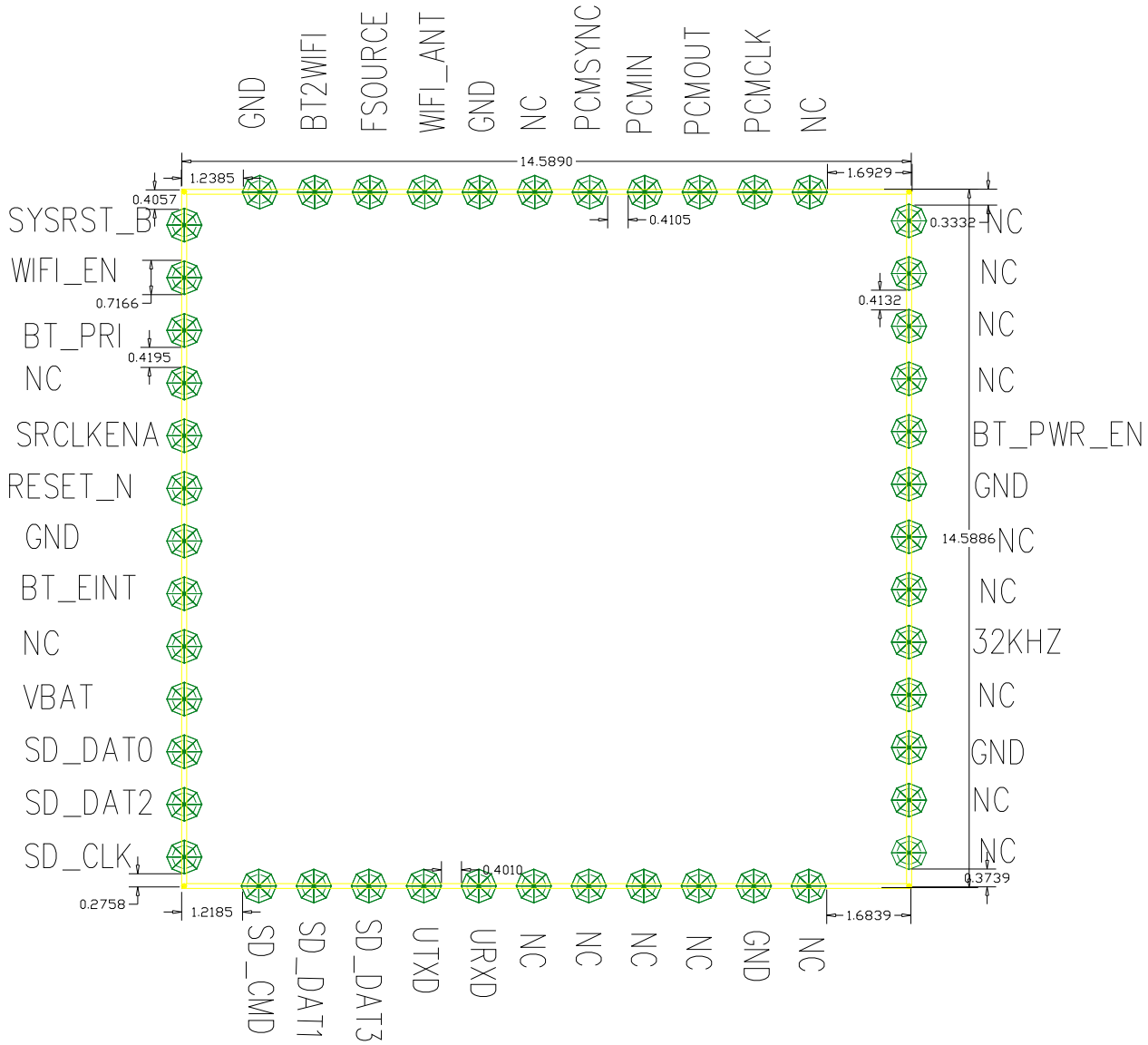
13. Mechanical Drawing & Mechanical size



Thickness：0.6mm