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# NW5061 产品规格书 V0.1

NW5061 Product Datasheet V0.1



深圳市大迈科技有限公司

Shenzhen Damai Technology Co.,Ltd.

2016-03-16

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## 产品历史版本与声明-Product Revision History and Clarification

版本号 Version No.	修改日期 Revised Date	修正人 Revised by	描述 Description	备注 Notes
V0.1	2016-01-18		初版发布 Preliminary release	
V1.0	2016-03-16		更新引脚定义 Update pin definitions	

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## 1. 产品描述-Product Description

NW5061 是一款用于开发 IoT 设备的高性能，低成本的 WLAN 模块如 WLAN 扬声器，智能玩具，家庭网关，智能产品应用等。模块基于君正 X1000/大迈 DM6291A SoC，主控频率可达 1.0GHz，集成 32MB/256MB LPDDR，可选 4~32MB nor 或 128MB~256MB Nand Flash，配置 802.11b/g/n 或 802.11b/g/n/ac Wi-Fi 方案最高无线速率可达 433.3Mbps 以及蓝牙 4.1 BLE，同时提供了两个 50 pin 的插排扩展接口作为各外设功能扩展如 GPIO，I2C，Audio out，MMC/SD/SDIO，USB OTG，UART，Ethernet MAC，SLCD，PWM，I2S/MIC，Camera DVP 等。

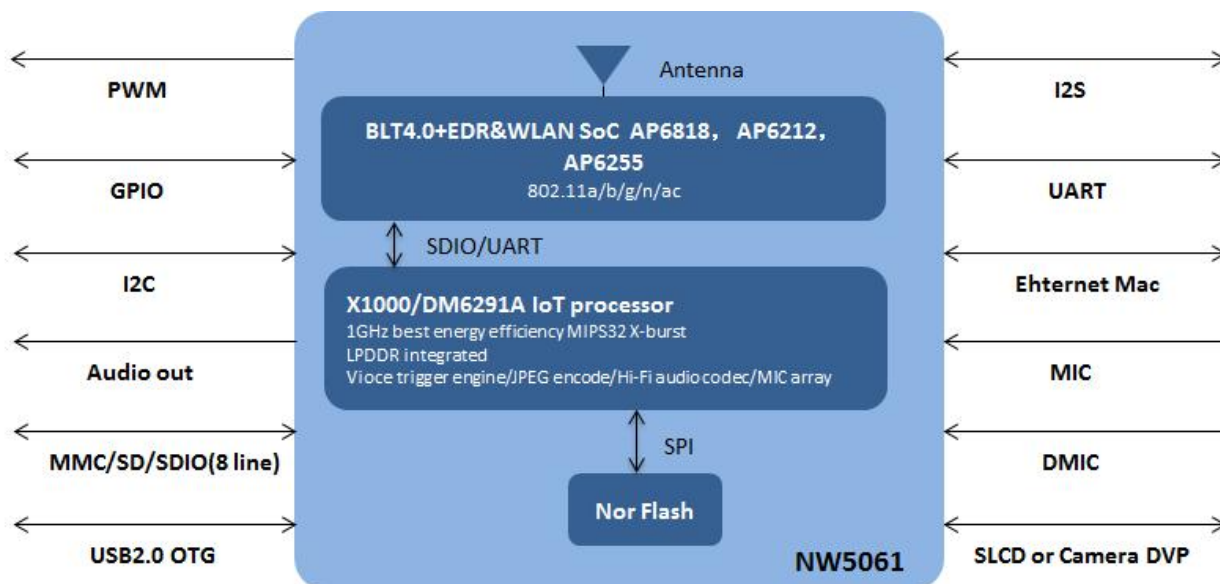
NW5061 is a high performance, low cost WLAN module designed for the internet of things (IoT) devices, such as WLAN speaker, smart toys, home gateway and smart appliances etc. It is based on the Ingenic X1000/Damai DM6291A SoC, which runs up to 1.0GHz and integrates 32MB/256MB LPDDR, and includes a 4/16/32MB SPI Flash or 128MB/256MB Nand Flash, Wi-Fi 802.11 b/g/n or Wi-Fi 802.11b/g/n/ac supports up to 433.3Mbps data rate and Bluetooth 4.1 with BLE. It also provides two 50 pin pin header interfaces for various external devices such as GPIO, I2C, Audio out, MMC/SD/SDIO, USB OTG, UART, Ethernet MAC, SLCD, PWM, I2S/MIC, Camera DVP etc.

NW5061 可以运行最新的 Linux Kernel 以及 TCP/IP 协议栈。由高性能的 XBurst CPU 使之可以运行各种算法如语音识别，图像识别，降噪，回声抵消，APE/FLAC 解码等。它也可以基于 Wi-Fi 或蓝牙连接来开发各种网络应用。

NW5061 can run the latest Linux kernel and TCP/IP stack. With the high-performance XBurst CPU, it is qualified to run various algorithms including speech recognition, image recognition, noise reduction, echo cancellation, APE/FLAC decoding etc. It can also be used to develop various networking applications based on Wi-Fi and Bluetooth connectivity.

## 2. 系统框图- System Block Diagram

- NW5061 系统框图如下：
- A simplified block diagram of the NW5061 is depicted in the figure below:



### 3. 产品外观-Product Appearance

这个部分展示 NW5061 的产品外观图. 图 1-1 是产品的侧面视图。

This section provides the appearance of the NW5061. Figure 1-1 shows the product view of the NW5061.

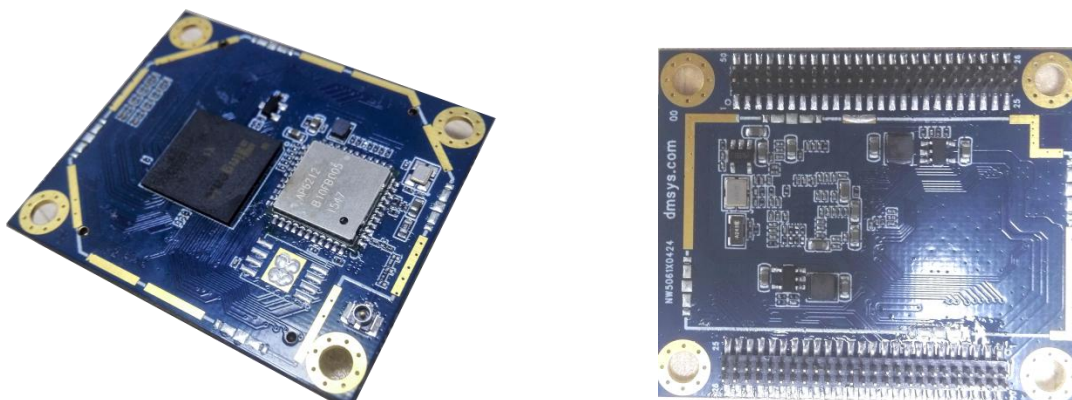
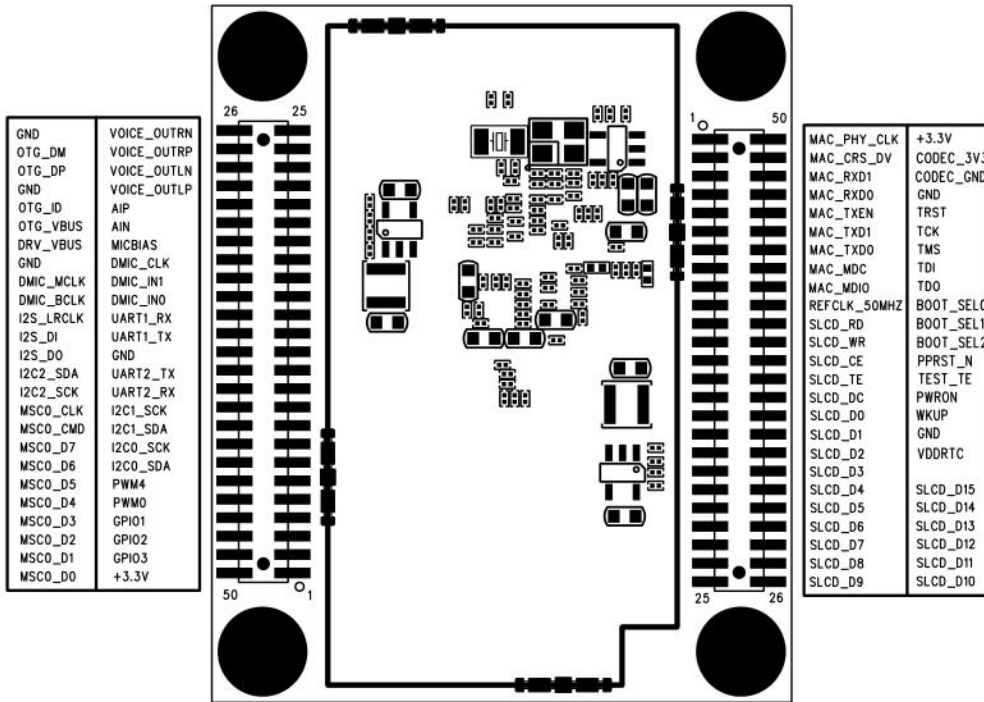


图 1-1. 产品外观图-Figure 1-1  
1-1 Product view

### 4. 硬件规格与性能- Hardware and Technical Spec

#### 4.1 硬件规格- HW Spec

项目 Item		定义 Definition				
Optional CPU		X1000(built-in 32MB LPDDR) or DM6291(built-in 256MB LPDDR)				
Flash	Nor Flash Optional	4MB	8MB		16MB	32MB
	Nand Flash Optional	128MB			256MB	
Wireless	Optional Module	BT	Wi-Fi 2.4G	Wi-Fi 5G	Max data rate	IEEE Protocol
	AP6181	NA	Yes	NA	72.2Mbps	802.11b/g/n
	AP6212	Yes	Yes	NA	72.2Mbps	802.11b/g/n
	AP6255	Yes	Yes	Yes	433.3Mbps	802.11b/g/n/ac



40\*48mm

#### 4.2 极限环境参数- Absolute Maximum Rating

项目 Symbol(Domain)	参数 Parameter	极限值 Max Rating	单位 Unit
Tstore	存储温度 Storage temperature	-20 - 80	℃
Toperation	工作温度 Operation temperature	0 - 40	℃
Hstore	存储湿度 Storage humidity	5%-90%RH (no condensing)	RH
Hoperation	工作湿度 Operation humidity	10%-90%RH (no condensing)	RH
ESD	静电释放承受度 (接触) Electrostatic discharge tolerance (contact)	4K	V

#### 4.3 Wi-Fi 接收特性-Receiver Characteristics

无线标准 Symbol	无线速率 Rate	灵敏度(T=25℃\ 2.4G) Sensitivity			单位 UNIT
		1	6	11	
802.11b	1 Mbps	-80	-80	-80	dBm
	11 Mbps	-76	-76	-76	dBm
802.11g	6 Mbps	-82	-82	-82	dBm
	54 Mbps	-65	-65	-65	dBm
802.11n[HT20]	MCS0	-82	-82	-82	dBm
	MCS7	-66	-66	-66	dBm

#### 4.4 Wi-Fi 发射特性- Transmitter Characteristics

无线标准 Symbol	无线速率 Rate	输出功率 Output power			偏差 Deviation	单位 UNIT
		1	7	13		
802.11b	1Mbps	17	17	17	±2	dBm
	11Mbps	17	17	17	±2	dBm
802.11g	6 Mbps	16	16	16	±2	dBm
	54 Mbps	13	13	13	±2	dBm
802.11n[HT20]	MCS0	16	16	16	±2	dBm
	MCS7	14	14	14	±2	dBm

#### 4.4 蓝牙规格- Bluetooth characteristics

项目 Item		参数 Parameter				
		Min	Typical	Max		
RF spec	RF power	Output Power (Class 1.5)		9		dBm
		Sensitivity @ BER=0.1% for GFSK (1Mbps)		-86		dBm
		Sensitivity @ BER=0.01% for $\pi/4$ -DQPSK (2Mbps)		-86		dBm
		Sensitivity @ BER=0.01% for 8DPSK (3Mbps)		-80		dBm
	Maximum Input Level	GFSK (1Mbps):-20dBm				
		$\pi/4$ -DQPSK (2Mbps) :-20dBm				
8DPSK (3Mbps) :-20dBm						
General spec	Bluetooth Standard	Bluetooth V4.0 of 1, 2 and 3 Mbps.				
	Host Interface	UART				
	Antenna Reference	Small antennas with 0~2 dBi peak gain				
	Frequency Band	2402MHz ~ 2480MHz				
	Number of Channels	79 channels				
	Modulation	FHSS, GFSK, DPSK, DQPSK				

#### 5. 配置信息- Config information

选项 Item	NW5061	-	X	X	X	X
CPU			D-DM6291A (256MB LPDDR) X-X1000 (32MB LPDDR)			
Wi-Fi module				A-AP6181 2.4G B-AP6212 2.4G+BT C-AP6225 5G+2.4G+BT		
Flash					4-4MB Nor 8-8MB Nor 6-16MB Nor 3- 32MB Nor 1-128MB Nand 2-256MB Nand	

Shielding cover					0-w/o shield cover 1-w/ shield cover
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## 6. 品质与交付-Quality and

### 6.1 可靠性- Reliability Requirements

序号 No	选项 Option	测试项目 Test Item	阶段与数量 Phase and qty	标准 Standard	备注 Note
1	■	高温工作 High temperature test	xVT: 2 PP: 2	According to GB/T 2423.3 "Ca" test. The test sample shall be the initial testing, test requirements are as follows: a) Product works under typical b) Temperature: Highest operation temperature+5℃±3℃ c) Humidity: 85% d) Duration: 24H Check the function, appearance, structure, performance comply with spec after test	
2		低温工作 Low temperature test	xVT: 2 PP: 2	According to GB/T 2423.1 Ab "test". The test sample shall be the initial testing, test requirements are as follows: a) Product works under typical b) Temperature: Lowest operation temperature+5℃±3℃ c) Humidity: 85% d) Duration: 24H Check the function, appearance, structure, performance comply with spec after test	
3		高温存储 High temperature storage	xVT: 5 PP: 5	According to GB/T 2423.2 Ba "test".The test sample shall be the initial testing, test requirements are as follows a) Product not working b) temperature: 85℃ c) Duration: 24H Check the function, appearance, structure, performance comply with spec after test	
4		低温存储 Low temperature storage	xVT: 5 PP: 5	According to GB/T 2423.1 Ab "test".The test sample shall be the initial testing, test requirements are as follows d) Product not working e) temperature: -25℃ f) Duration: 24H Check the function, appearance, structure, performance comply with spec after test	
5		振动 Vibration	xVT: 5 PP: 5	According to GB/T 2423.10 Fc "test".Fix the DUT in vibration machine and initiate the test.Test requirements are as follows: a) The sample is without packing and firmly fixed on the test bench. b) Parameters: 6 db/oct, 10-20 hz frequency range.20-500 Hz frequency range, the power spectrum density 0.05 g <sup>2</sup> / Hz.Three axial: X/Y/Z axis. c) Duration: 0.5 hours each axial, a total of 1.5 hours. Check the function, appearance, structure,	



				performance comply with spec after test	
6		跌落 Drop test	xVT: 5 PP: 5	According to GB/T 2423.8.Initial tests.Test requirements are as follows: Height: 1000 mm Drop: six concrete surface or marble surface, 2 times on each side, a total of 6 times Check the function, appearance, structure, performance comply with spec after test	

## 6.2 测试交付清单- Test Deliverable List

编码 NO.	项目项 Test Project	标准 Standard	选项 Option
1	半成品测试 PCBA product test test	产品规格标准 Product specification standard	是 Yes
2	屏蔽箱测 Shielding box test signal	产品规格标准 Product specification standard	是 Yes

## 7. 订单信息-Order Information

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