



博昊科技有限公司  
BOUGH TECHNOLOGY LIMITED

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# BG335

IEEE 802.11 a/b/g/n 2.4GHz+5G

WiFi 2T2R+BT 4.0 Module

## Specification

Ver:10

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Bough Technology LTD.



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**Version Update**

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Item	Version	Date	Description
1	V01	Dec05, 2016	The First Version
2	V10	Sep3, 2017	Change Module Size

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### DESCRIPTION

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The BG335 is a wireless Module targeting Bluetooth, wifi and 5.8G Smart applications.

The BG335 is a highly integrated single chip which has built in a 2x2 dual-band wireless LAN radio and Bluetooth radio module. It supports IEEE 802.11a/b/g/n standard and provides the highest PHY rate up to 300Mbps, offering feature rich wireless connectivity and reliable throughput from an extended distance. It includes Bluetooth EDR and LE radio which complies with Bluetooth v2.1+EDR,v3.0, and v4.0+BLE.Optimized RF architecture and baseband algorithms provide superb performance and low power consumption.

The BG335 integrates PA/LNA such that the number of the external components is reduced to minimum. Intelligent MAC design deploys a high efficient DMA engine and hardware data processing accelerators which offloads the host processor.

The BG335 module supports the 802.11i security standard and implements hardware acceleration for TKIP, CCMP and WAPI. The device also supports 802.11e QoS for video, voice, and multimedia applications.

The BG335 module can provide a concurrent operation of Wi-Fi and Bluetooth over USB interface. An intelligent Wi-Fi/Bluetooth coexistence algorithm is implemented to reach the best Wi-Fi and Bluetooth radio performance. The BG335 module also features the high-speed UART with SIG standard HCI interface to support Bluetooth over UART.

### FEATURES

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#### Platform

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- Embedded high-performance 32-bit RISC microprocessor
- Highly integrated RF with 55nm CMOS technology
- Integrate high efficiency switching regulator
- 20/40MHz crystal clock support with low power operation in sleep mode
- Best-in-class active and idle power consumption performance
- Fully Compliance with USB v2.0
- Advanced FDD/TDD mode Wi-Fi/Bluetooth coexistence scheme
- Wi-Fi and Bluetooth over USB
- Bluetooth over UART
- External SPI flash support enables auto installation over USB interface

#### WLAN

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- IEEE 802.11 a/b/g/n/ac compliant
- Support 20MHz, 40MHz in 5GHz band, and 20MHz, 40MHz bandwidth in 2.4GHz band
- Dual-band 2T2R mode with data rate up to 300Mbps
- Support STBC, LDPC, MRC, and transmit Beamforming
- Greenfield, mixed mode, legacy modes support
- Frame aggregation
- Integrated LNA, PA, and T/R switch
- Optional external LNA and PA support.
- IEEE 802.11 d/e/h/i/k/r/w support
- Security support for WFA WPA/WPA2 personal, WPS2.0, WAPI
- Supports 802.11w protected managed frames



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- QoS support of WFA WMM, WMM PS
  - 802 to 802.3 header translation offload
  - Supports Wi-Fi Direct
  - Per packet transmit power control
  - Wake on WLAN

### Bluetooth

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- Bluetooth specification v2.1+EDR
- Bluetooth v4.0 Low Energy (LE)
- Standard HCI interface over USB super-speed, high-speed and full-speed mode
- High speed UART up to 4Mbps BAUD rate
- Integrated BALUN and PA with 9dBm transmit power
- Best-in-class BT/Wi-Fi coexistence performance
- Scatternet support: Up to 4 piconets simultaneously with background inquiry/page scan
- Up to 4 simultaneous active ACL links
- Support SCO and eSCO link with re-transmission
- Support wide-band speech and hardware accelerated SBC codec for A2DP streaming
- Packet loss concealment
- Channel quality driven data rate adaptation
- Channel assessment for AFH
- 3DD support
- Wake on Bluetooth

### Applications

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- Laptop NB
- Tablet/MID
- USB dongle
- DTB



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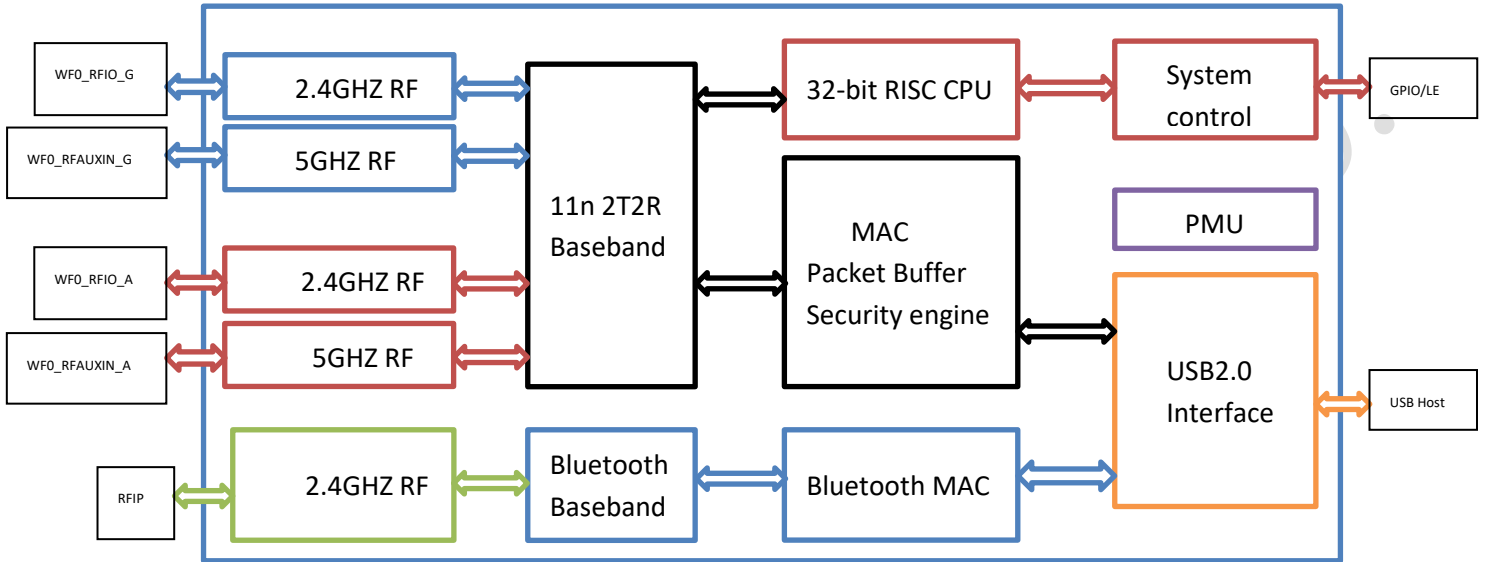
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**General Specification**

Model	BG335
Product Name	BG335 Module
Major Chipset	MT7632U
Standard	WIFI: 802.11b/g/n/ac BT : V4.0
Data Transfer Rate	11b:1, 2, 5.5 and 11Mbps 11a/g:6, 9, 12, 18, 24, 36, 48 and 54 Mbps 11n: MCS0~15, up to 300Mbps 11ac: MCS0~9, Nss=2, up to 866.7Mbps
Modulation Method	11b: DBPSK, DQPSK and CCK and DSSS 11a/g: BPSK, QPSK, 16QAM, 64QAM and OFDM 11n: BPSK, QPSK, 16QAM, 64QAM and OFDM 11ac: BPSK, QPSK, 16QAM, 64QAM,256QAM and OFDM
Frequency Band	2.4GHz /5 GHz
OS Support	Windows 2000,XP32-64,Vista 32/64,Win7 32/64,Linux,Mac, Android,WIN CE
Security	64-bit WEP (WEP-40) and 128-bit WEP (WEP-104) encryption with hardware TKIP and CKIP processing AES-CCMP hardware processing SMS4-WPI (WAPI) hardware processing
Bus Interface	WiFi:USB 2.0 BT: USB
Operating Channel	WiFi 2.4GHz: United States : 11: (Ch. 1-11); Europe : 13: (Ch. 1-13) ; Japan : 14: (Ch. 1-14) BT 2.4GHz: Ch. 0 ~78
Power Consumption	3.3 V $\pm$ 0.2V I/O supply voltage
OperatingTemperature	-10 ~ +70 °C ambient temperature
Storage Temperature	-10 ~ 70 °C ambient temperature
Humidity	5 to 90 % maximum (non-condensing)
PCB Dime	30.5 x18 x2 (L x W x H, unit: mm)



Block Diagram



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**Power Supply DC Characteristics**

PARAMETER	TEST CONDITIONS	PERFORMANCE			
		MIN	TYP	MAX	UNIT
Switching regulator					
Input voltage		2.97	3.3	3.63	V
output voltage	Default voltage setting in the programmable range				
Output current	5GHZ TX VHT80@17.5dBm	-	934		mA
Sleep mode			2.2		mA
Line regulation	3.36 input voltage range @no load			1	%
Load regulation	1Ma to 800Ma load current			0.05	mV/mA
Efficiency	600mA to 700Ma load current		85		%
Over current shutdown	Threshold			960	mA
Digital LDO					
Input voltage		1.5	1.6	1.8	V
Output voltage		1.0	1.6	1.3	V
Output current		-	-	650	mA
Quiescent current	No load		10		uA



## PIN Define



Pin No	PIN Name	PIN Type	Description		PIN Name	PIN Type	Description
1	BT_WAKE		Bluetooth wake up	9	NC		
2	GND	Ground	Digital Ground	10	GND	Ground	Digital Ground
3	RST		Reset	11	GND	Ground	Digital Ground
4	USBDN			12	NC		
5	USBDP			13	GND	Ground	Digital Ground
6	VCC	Power	Module Power Input	14	GND	Ground	Digital Ground
7	WIFI_WAKE		WIFI Wake up	15	NC		
8	Buck_1V5_OUT		Output 1.5v				



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## Module Size

