



## Bluetooth Module Design Application

<b>Product Name</b>	<b>GST class 1 Bluetooth module</b>
<b>Product ID</b>	<b>GL2BMU01</b>
<b>Hardware Version</b>	<b>Rev.01</b>
<b>Firmware Version</b>	<b>15.3</b>

### OVERVIEW

GL2BMU01 is a highly integrated Bluetooth module includes Radio, Baseband, Link Manager, and Host Control Interface. Due to its sufficient pin definitions, high receiving sensitivity, low power consumption, and low cost, GL2BMU01 is suitable for numerous electronic devices, such as Notebook PC, PDA, Modem, Router, Joystick, USB/UART adapter....

### FEATURE

- Comply with Bluetooth Specification V1.1
- Support up to 7 ACL connection and 3 SCO connection
- Up to 12 PIO/ 2 AIO pin definitions is ideally suited for rapid embedded development any kind of products.
- 13 bit PCM interface
- UART interface with programmable baud rate
- Compact size (25x14.5x2.2mm) can be fit any type of product
- RF output power +18 dBm (class 1).
- High receiving sensitivity (-88 dBm 0.1%BER).
- Pin to pin compatible with GL2BMU02 class 2 module for cost reduction.
- Output interface over USB/UART/PCM/SPI.
- Alternative built-in 4M or 8M flash memory.

### APPLICATIONS:

Notebook PC, PDA, Access Point, USB dongle, Headset, UART adapter, router, modem, Mouse, Keyboard, PC peripherals, embedded products....



## GENERAL SPECIFICATION

ITEMS	SPECIFICATION
Supply Voltage	VDD: 3.3V+/-0.3V Regulated supply voltage
Carrier Frequency	2400MHz to 2483.5MHz(USA,Spain,France)
Modulation Method	GFSK,1Mbps,0.5BT Gaussian
Maximum Data Rate	Asynchronous:723.2kbps/57.6kbps Synchronous:433.9kbps/433.9kbps
Transmission Power	+18dBm to -12dBm; Power control 6 stage
Hopping	1600hops/sec, 1MHz channel space
Receiving Signal Range	-88dBm to -20 dBm
Receiver IF Frequency	1.5MHz center frequency
Baseband Crystal OSC	16MHz
Output Interface	USB,PCM,SPI,UART
Operation Temperature	-20 to +85 degree
Absolute Max Supply Voltage	3.6V for VDD,other VDD +0.3V
Storage Temperature	-40 to +85 degree
Bluetooth Specification	Ver1.1
USB Specification	Ver 1.1



## ELECTRICAL CHARACTERISTICS

### 1) Transmitter Section

ITEMS		Min	Typ	Max	Unit	Condition
Transmission power	ETC1	-14	+16	+18	dBm	Longest supported packet
Initial Frequency Accuracy		-75		75	KHz	Hopping ON/OFF Continuous TX
In-band spurious	ETC1					Max hold and 100kHz
M +/- 500 kHz				-20	dBc	
M-N =2				-20	dBm	
M-N  ≥ 3				-40	dBm	
Exception	NOTE5			-20	dBm	
Out of band spurious	ETC1					100kHz RBW
(Operation mode)						
30MHz to 1GHz				-36	dBm	
1GHz to 12.75GHz				-30	dBm	
1.8GHz to 1.9GHz				-47	dBm	
5.1GHz to 5.3GHz				-47	dBm	
Adjacent Channel Power						
+/-2MHz				-20	dB	
>+/-3MHz				-40	dB	
Modulation Characteristics	F1AVG	140		175	KHz	00001111,Hopping off DH1
NTC	F2MIN	115			KHz	01010101,Hopping off DH1
	F2AVG/F1AVG	0.8				
Frequency Drift				±25	KHz	DH1
				±40	KHz	DH3
				±40	KHz	DH5
						Max Drift rate:400Hz/10us
Operation current	ETC1			150	mA	Peak Current during bust



## 2)Receiver Section

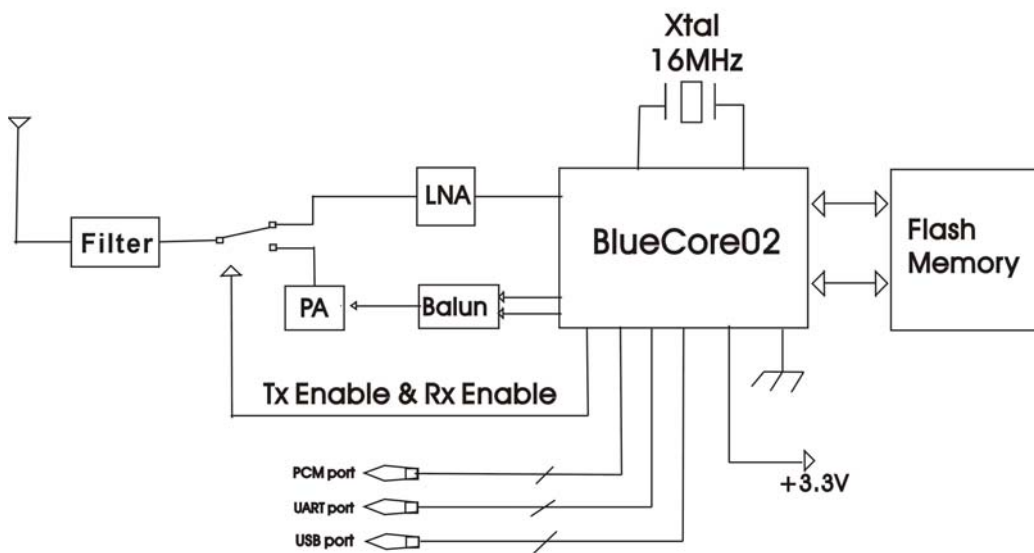
ITMES	Min	Typ	Max	Unit	Condition
Sensitivity					BER 10E-3,hopping
Single slot packet	-90	-88	-85	dBm	off/1600K returned payload bit
Multi slot packet	-90	-88	-85	dBm	Multi slot packets uses DH5
Maximum received signal NTC	-20			dBm	BER 10E-3,hopping off 1600K returned payload bit ,multi slot packet,DH1
Out-band blocking NTC					Hopping off,BER 10E-3
30MHz to 2000MHz	-10			dBm	
2000MHz to 2399MHz	-27			dBm	
2498MHz to 3000MHz	-27			dBm	
3000MHz to 12.75GHz (idle mode)	-10			dBm	
30MHz to 1GHz			-57	dBm	
1GHz to 12.75GHz			-47	dBm	
1.8GHz to 1.9GHz			-47	dBm	
5.15GHz to 5.3GHz			-47	dBm	
Intermodulation NTC	-39			dBm	Hopping off,BER 10E-3
Interference Performance					NTC,BER 10E-3 Measured at
Co-channel			14	dB	hopping off.
Image frequency			-6	dB	
Adjacent(1MHz) to In-band image			-16	dB	

## PIN DEFINITION

PIN Name	No	I/O	Description
GND	36		Ground
GND	35		Ground
GND	34		Ground
GND	33		Ground
AIO0	32	I/O	Programmable Input/Output line
AIO1	31	I/O	Programmable Input/Output line
RESET	30		Reset if high
SPI_MISO	29	O	Synchronous Serial Interface Data Input
SPI_CSB	28	I	Chip select for Synchronous Serial Interface
SPI_CLK	27	I	Synchronous Serial Interface Clock
SPI_MOSI	26	I	Synchronous Serial Interface Data Input
UART_CTS	25	I	UART clear to send
UART_TX	24	O	Asynchronous Serial Data Output
UART_RTS	23	O	UART ready to send
UART_RX	22	I	Asynchronous Serial Data
1V8	21		For BlueCore2 CORE
GND	19		Ground
VSUP	20	I	3V3 for RF circuit
PCM_OUT	18	O	Synchronous Data Output
PCM_SYNC	17	I/O	Synchronous Data SYNC
PCM_IN	16	I	Synchronous Data Input
PCM_CLK	15	I/O	Synchronous Data Clock
USB_DP	14	I/O	USB Data+
USB_DN	13	I/O	USB Data-
PIO11	12	I/O	Programmable Input/Output Line
PIO10	11	I/O	Programmable Input/Output Line
PIO9	10	I/O	Programmable Input/Output Line
PIO8	9	I/O	Programmable Input/Output Line
PIO7	8	I/O	Programmable Input/Output Line
PIO6/CLK_REQ	7	I/O	PIO line or clock request output to enable external Clock fro external clock line
PIO5/USB_DETACH	6	I/O	PIO line or chip detaches from USB when this input is high
PIO4/USB_ON	5	I/O	PIO or USB on (input senses when VBUS is high, wakes BlueCore2-External)
PIO3/USB_Wake_Up	4	I/O	PIO or Output goes high to wake up PC when in USB mode

PIO2/USB_Pull_Up	3	I/O	PIO or USB pull-up
GND	2		Ground
ANT	1	I/O	Transmitter out and receiver input
PIO1/TXEN	37	I/O	Control output for external PA class 1 only
PIO0/RXEN	38	I/O	Control output for external LNA(if fitted)
GND	39		Ground

## GL2BMU01 Block Diagram



*GST Confidential*

## GL2BMU01 PIO Placement

