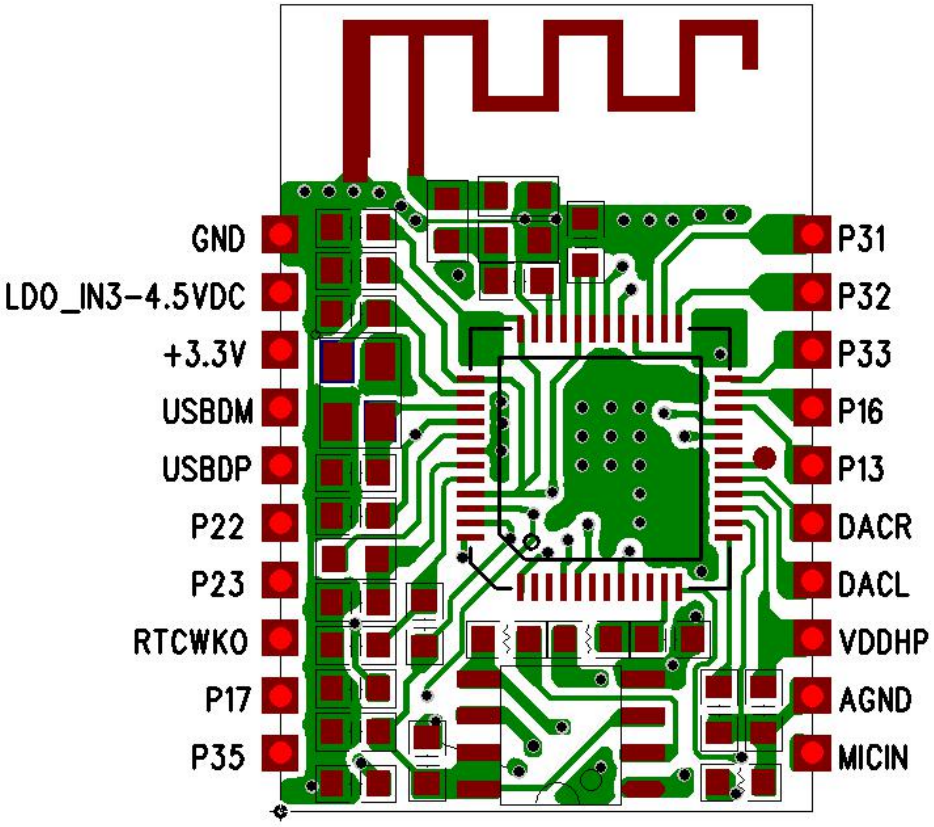
1.1 Overview

MC-BTM-76H-001 is the BlueTooth Module used CW6676H chipset, the CW6676H is an MCS-51TM Compatible high performance mixed signal microcontroller. It integrates advanced digital and analog peripherals to suit for BT Audio applications.

1.2 Features

- CPU Compatible with MCS-51TM instruction set
- Compliant to Bluetooth 4.2+EDR,Backward-compatible with BT1.2,2.0 and 2.1.
- Support SCMS-T content protection method
- Support HFP v1.6, HSP v1.2, A2DP 1.3, AVCTP 1.4,AVDTP 1.3 and AVRCP 1.5
- Class 2 power level, RF Performance: Tx:0dBm, Rx:-80dBm
- Support simple pairing and auto reconnection function
- Six Channel 10-bit SARDAC
- Support 16bit Stereo DAC with >90dB SNR,
- Embedded with two class A/B headphone amplifier
- 16bit Mono ADC with >90dB DR.
- Support Audio record function to MIC ADPCM;
- Two 8-bit timers, support Capture and PWM mode;
- Two 16-bit timers, support Capture and PWM mode;
- Watchdog Timer with on-chip RC oscillator;
- Support full-duplex IIS, UART, SPI interface;
- 2 channels 16 levels Low Voltage Detector;
- Power on Reset
- Support Full speed USB 2.0 PHY;
- Full speed USB 2.0 HOST/DEVICE controller;
- Internal crystal oscillator support 26M crystal
- Internal LDO regulator:1.35V to 1.2V;4.2V to 3.3V
- Built-in buck converter,DC-DC:4.2V to 1.35V



3 Characteristics

3.1 PMU Parameters

Table 3-1 PMU Parameters

Sym	Characteristics	Min	Typ	Max	Unit	Conditions
BVIN	Buck input voltage	2.8	4.2	4.6	V	
VDDLDO	VDDLDO input voltage	2.8	4.2	4.6	V	
VOUT1V5	Buck output voltage	1.15	1.35	1.6	V	
VDDCORE	1.2V output voltage	-	1.2	-	V	
VDDRTC	input voltage	2.2	4.2	4.6	V	
VDDHP	3.0V output voltage	2.8	3.0	3.3	V	
VCM	1.5V output voltage	-	1.35	-	V	
RVDD	output voltage	1.1	1.2	1.3	V	
VDDIO	3.3V output voltage	2.8	3.3	-	V	

3.2 CORE PLL Parameters

Table 3-2 PLL Parameters

Sym	Characteristics	Min	Typ	Max	Unit	Conditions
FI1	Frequency input	-	32.768	-	KHz	Low frequency OSC
FI2	Frequency input	1	12	15	MHz	High frequency OSC
FOUT1	Frequency output	-	48	-	MHz	
TLOCK1	PLL locked time	-	2	-	ms	Use low frequency OSC as input reference
TLOCK2	PLL locked time	-	0.1		ms	Use high frequency OSC as input reference

3.3 General purpose I/O Parameters

Table 3-3 I/O Parameters

Symbol	**Description**	**Min**	**Typ**	**Max**	**Units**	**Conditions**
VIL	Level input voltage	-	-	30% * VDDIO	V	VDDIO = 3.3V
VIH	High-level input voltage	70% * VDDIO	-	-	V	VDDIO = 3.3V
RPUP0	Internal pull-up resister 0	0	10	-	KΩ	
RPUP1	Internal pull-up resister 1	1	200	-	KΩ	
RPUP2	Internal pull-up resister 2	2	0.5	-	KΩ	
RPDN0	Internal pull-down resister 0	0	10	-	KΩ	
RPDN1	Internal pull-down resister 1	1	0.33	-	KΩ	
RPDN2	Internal pull-down resister 2	2	0.5	-	KΩ	
ILEVEL1	Level1 current driving	8	-	-	mA	For PORT1
ILEVEL2	Level2 current driving	24	-	-	mA	For Port1.1

3.4 Audio ADDA Parameters

Table 3-4 Audio DAC Parameters

Sym	Characteristics	Min	Typ	Max	Unit	Conditions
DAC SNR&DR		-	90	-	dB	48PIN
DAC SNR&DR		-	90	-	dB	28PIN & 20 PIN
DAC THD+N		-	-80	-	dB	10Kohm loading
PWRAB	ClassAB AMP power output	-	-	16	mW	32ohm loading
VPP	Maximum output voltage	-	-	2.6	V	10Kohm loading
ADC SNR/DR			93		dB	In Voice Band
ADC THD+N 89			89		dB	In Voice Band

3.5 **RF Analog Blocks**

Table 3-5 Frequency Synthesizer Parameters

Parameter	Condition		MIN	typ	max	Unit
Synthesizer						
Synthesizer settling time	Within +/- 25 KHz accuracy		-	70	-	us
Phase Noise	Fc=2.4GHz	△F=1 MHz	-	-110	-	dBc/Hz
		△F=2 MHz	-	-118	-	dBc/Hz
		△F≧3 MHz	-	-123	-	dBc/Hz
XTAL Oscillator						
Frequency range			-	26	-	MHz
Frequency Trimming Range	6 bits		-1	-	+1	kHz

Table 3-6 Receive path Parameters

Parameter	Condition	MIN	typ	max	Unit
Receiver Channel					
Minimum Usable Signal	RX sensitivity	-	-80	-	dBm

LNA						
Gain		High Gain	-	25	-	dB
		Mid Gain	-	15	-	dB
		Low Gain	-	5	-	dB
Mixer						
Conversion Gain			-	0	-	dB
IFamp						
Gain	5/9/12/15/18 dB		-	12	-	dB
Complex BPF						
Band pass -3 dB BW	Figure 1.		-	2	-	MHz
Image Rejection			-	-30	-	dB
VGA						
Gain Range			-6	-	+68	dB
Gain Step			-	+1/+6	-	dB
ADMOD						
Gain Range	Freq = +- BW		-	>50	-	dB

Table 3-7 Transmit path Parameters

Parameter	**Condition**	**MIN**	**typ**	**max**	**Unit**
Transmit Channel					
Available output power		-2	0	1.5	dBm
Side Band Suppression		-	-30	-	dBm
LPF					
Low pass -3 dB BW	Figure 2.	-	1	-	MHz

TXVGA						
Gain Step			-7	-	7	dB
PA						
Gain Range	Set paPWR[2:0] of Control Register #16	GFSK	-12	-	4	dBm
		DPSK	-15	-	1	dBm

FCC Statement

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: 1) this device may not cause harmful interference, and 2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

--Reorient or relocate the receiving antenna.

--Increase the separation between the equipment and receiver.

--Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

--Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Radiation Exposure Statement

This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Attention: Limited Modular Approval - this RF Module may not be sold to the generic public and requires professional installation. Due to the fact that this RF Module is not equipped with an own shielding, the end-product incl. this RF Module has to show compliance to the FCC rules (15C / radiated emissions).

(OEM) Integrator has to assure compliance of the entire end-product incl. the integrated RF Module. Additional measurements (15C) and/or equipment authorizations

(e.g either a complete new certification or a Class II Permissive Change) may need to be addressed depending on co-location or simultaneous transmission issues if applicable.

Integrator is reminded to assure that these installation instructions will not be made available to the end-user of the final host device.

The Integrator will be responsible to satisfy SAR/ RF Exposure requirements, when the module integrated into any (portable, mobile, fixed) host device.

The final host device, into which this RF Module is integrated" has to be labeled with an auxiliary label stating the FCC ID of the RF Module, such as "Contains FCC ID: 2AIN5-SPC284".