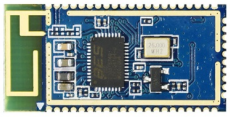
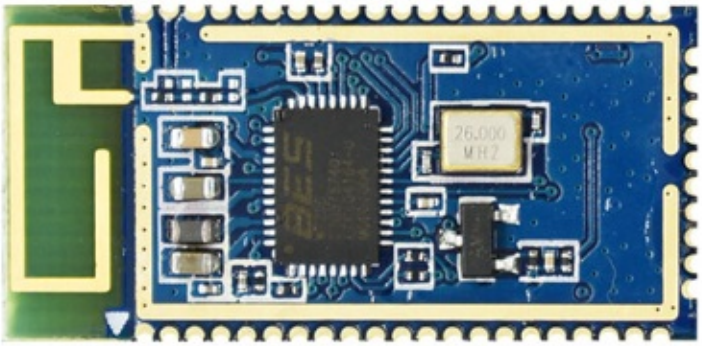


HARMAN BP1064L2 Bluetooth Module Instruction Manual

Contents

HARMAN

HARMAN BP1064L2 Bluetooth Module



port definition

J13

- Pinl +5V

- Pin2 +3. 3VA
- Pin3 -4V
- Pin4 DGND
- Pin5 DGND
- Pin6 CHGND
- Pin7 CHGND
- Pin8 +3. 3V
- Pin9 +V_LED
- Pin10 +15V
- Pinl1 -15V
- Pin12 AGND
- Pin13 CH1_HIZ
- Pin14 DIP1 4
- Pin15 CHGND
- Pinl6 CH1_CLIP
- Pin17 SIG _LED1
- Pin18 CHI_PRIORITY
- Pin19 MAIN_POWER
- Pin20 MAIN MUTE
- Pin21 M74HC165 S/L
- Pin22 M74HC165_CK
- Pin23 M74HC165_QH
- Pin24 AGND
- Pin25 CH1_AMP
- Pin26 AGND
- Pin27 CHGND
- Pin28 CHGND

J28

- Pinl +5VM
- Pin2 DGND

J27

- Pinl +5VM
- Pin2 DGND
- Pin3 +V LCD

JI AUDI0 IN

- Pinl AGND
- Pin2 MUSIC 1 INPUT
- Pin3 CH4 INPUT

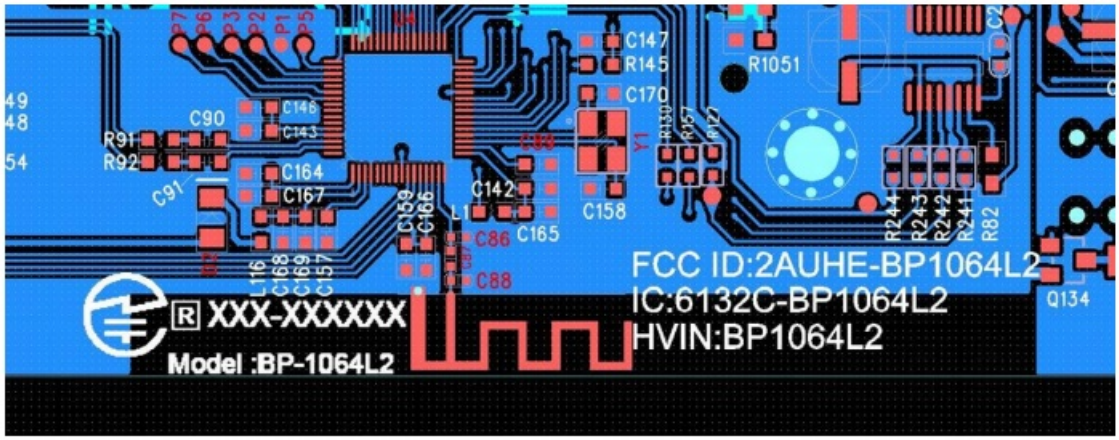
- Pin4 CH3 INPUT
- Pin5 CH2 INPUT

J2

- Pinl DIPI_4
- Pin2 CHGND
- Pin3 +15V INPUT
- Pin4 CHGND
- Pin5 -15V INPUT
- Pin6 AGND
- Pin7 CHI INPUT
- Pin8 CHGND

PCB function

1. PCBA includeINPUT1/INPUT2/INPUT3/INPUT4/MUSIC1 Analog signal input preamplification
2. Bluetooth audio signal decoding and amplification circuit
3. Mixed audio signal amplifier circuit
4. Sine wave/clipping signal LED indicating control circuit
5. TONE/HPF/MASTER VOLUME CONTROL
6. USB MP3 Audio decoder control circuit



Overview

Core and Memory

- High-performance 32-bit RISC core, max. 288MHz, supports DSP instruction, with a floating-point unit(FPU) integrated
- FFTAFFT accelerator supports operations of up to 1024 complex numbers or 2048 real numbers
- 320KB on-chip SRAM, 32KB 1-Cache and 32KB D-Cache
- Internal 16M bits FLASH code and data storage
- REFUSE configuration register
- 2-wire SDP(Serial Debug Port), break-point and code tracking debug
- 40 interrupt vectors

- 4Hevel interrupt priority

Audio

- Four audio ADC, SNR294dB 9 sampling rate: 8KHz/ 11.025KHz / 12KHz/ 16KHz/ 22.05KHz / 24KHz/32KHz / 44.1KHz 148KHz
- Support up to 4 digital microphones or 2 analog microphones with AGC
- ADC line-in supports single-end or differential input
- Three audio DAC, SNR105dB 9 sampling rate: 8KHz/ 11.025KHz / 12KHz/ 16KHz / 22.05KHZ / 24KHz/ 32KHz /44.1KHz 148KHz Directy drive earphone of 160 or 320 with power of 40mW
- Two duplex 12S(or lIS), sampling rate 8K-192KHz, max. 32bits
- One half-duplex SIPDIF supporting HDM audio and ARC

Bluetooth

- Dual mode Bluetooth V5.0, compatible with Bluetooth V4.2 and V2.1-EDR
- Support Piconet and Scattemet networking protocols
- Maximum transmit power is 10dBm, supports class1, class2 and class3
- Receiving sensitivity (Typical)
  - DH1: -88dBm
  - 2DH5: 88dBm
  - 3DH5: 82dBm
- Support A2DPIAVRCP/HFPIHSPIOPPIHID/SPP/PBAPI GATTISM profiles
- Support PLC(Package Loss Concealment)

Power, Clock and Reset

- DC 3.3-5V power supply @LDOIN
- Internal LD0s: 5V to 3.3V and 3.3V to 1.2V
- RC 12MHz and two PLL blocks
- Support 24MHZ crystal
- Internal POR(Power on Reset), LVD(Low Voltage-Detection) and Watchdog
- Multiple low-power options: CPU clock frequency reduction, system clock frequency reduction, sleep, deep sleep
- Low power RTC mode, supporting 1O wake-up and alarm signal output

Timer, PWM and PWC

- 2 basic timers (TIM1, TIM2)
- 4 general timers (TIM3, TIM4, TIM5, TIM6), with PWM and PWC function

Peripherals

- Max. 38 GPIOs

- All GPIOs support external interrupt and wakeup
- GPIOS is configurable: pull-up, pull-down, Hi-impedance, pull-down current source, etc
- USB 2.0 Ful-speed OTG controller and PHY, 6 endpoints
- One SPI master(SPIM) max.60M
- One SPl slave(SPIS)@ max.60M
- One SDIO@ max.30M
- Two duplex UART @max.3Mbps, the UARTO0 with flow control
- One 12C master/slave controller@ max.400K 12-bit SAR-ADCmax. 450K sampling rate, sampling from 15 external IOs or 2 internal voltages
- One IR interface supports NEC or SONY mode
- True random number generator

DMA

- 8-channel DMA, all memory direct addressing, addresses can be assigned to any peripherals except OTG, IR and 12C
- The unique automatic transmit-and-capture mechanism for memory and 1O matching, or
- DMA-GPIO, can simulate various communication and control timing

SDK Firmware Stack and IDE

Audio algorithm list:

- Decode: MP2, MP3, WMA, APE, FLAC, AAC, MP4, M4A, WAV(IMA-ADPCM & PCM), AIF, AIFC
- Encode: MP2/MP3, IMA-ADPCM
- Sound effects: Echo, Reverb, 3D, Virtual bass, Auto-tune/pitch shifted voice changer, EQ, DRC, AEC, Noise suppression, Frequency-shiftüing, Screaming detection and suppression
- SDK includes abounding of examples and middleware
- Free Eclipse-based IDE and GCC compiler
- Support FreeRTOS
- All C programming, easy for porting

Firmware Programming and Protection

- Multiple flash programming supported: debugger, specific burner/programmer, or Flash Burner Lite
- Firmware upgradable with Dual-bank
- 32-bit customized key for firmware encryption
- On-chip 64-bit unique ID

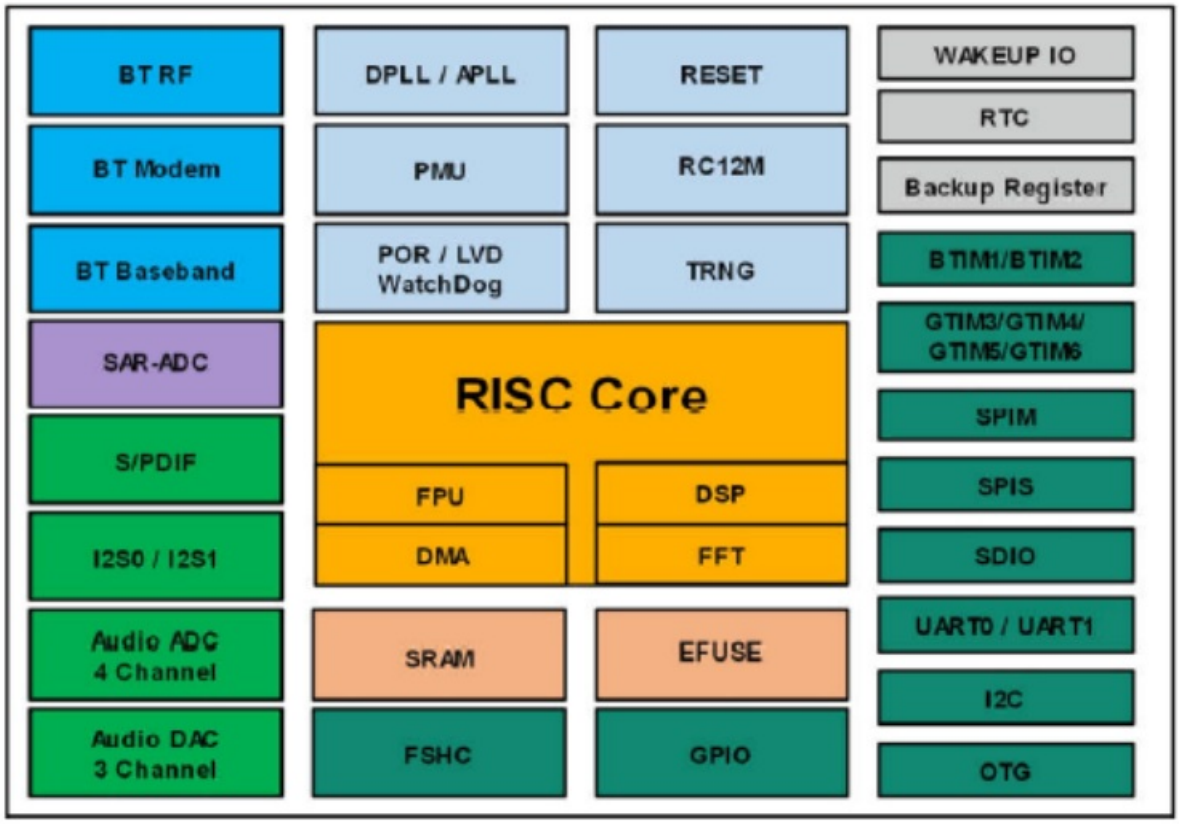
Package and Operational Temperature

- LQFP64-7x7mm Working temperature:-40’C 85C

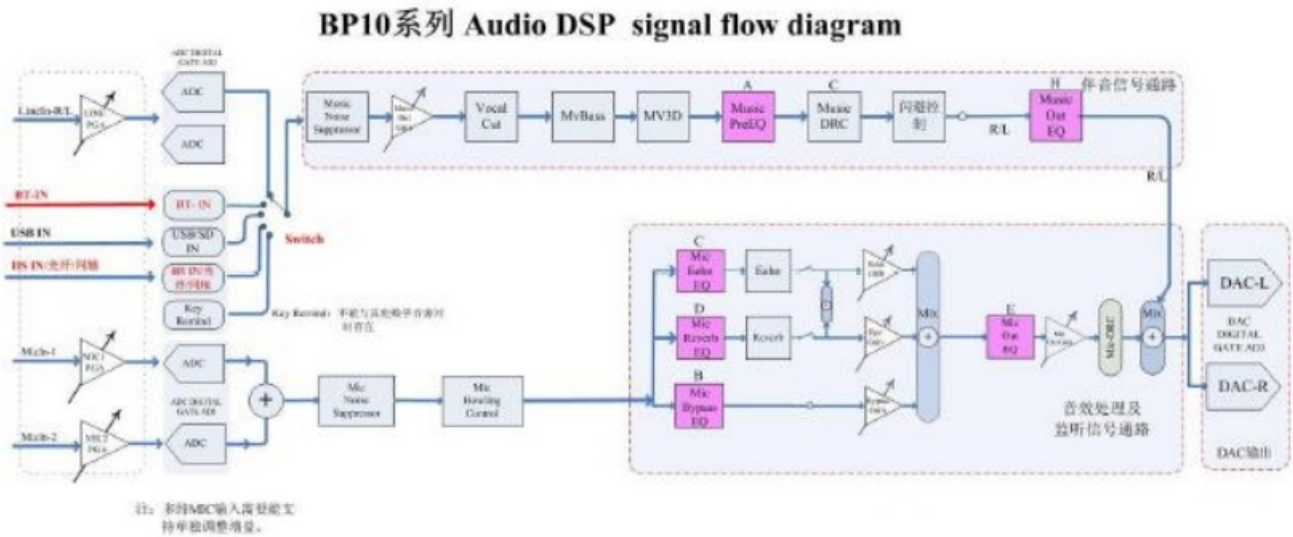
Application Fields

- Bluetooth audio speaker
- Bluetooth Karaoke equipment
- Bluetooth Headphone
- Bluetooth Car audio
- Multiple microphone system for intelligent voice application with Bluetooth

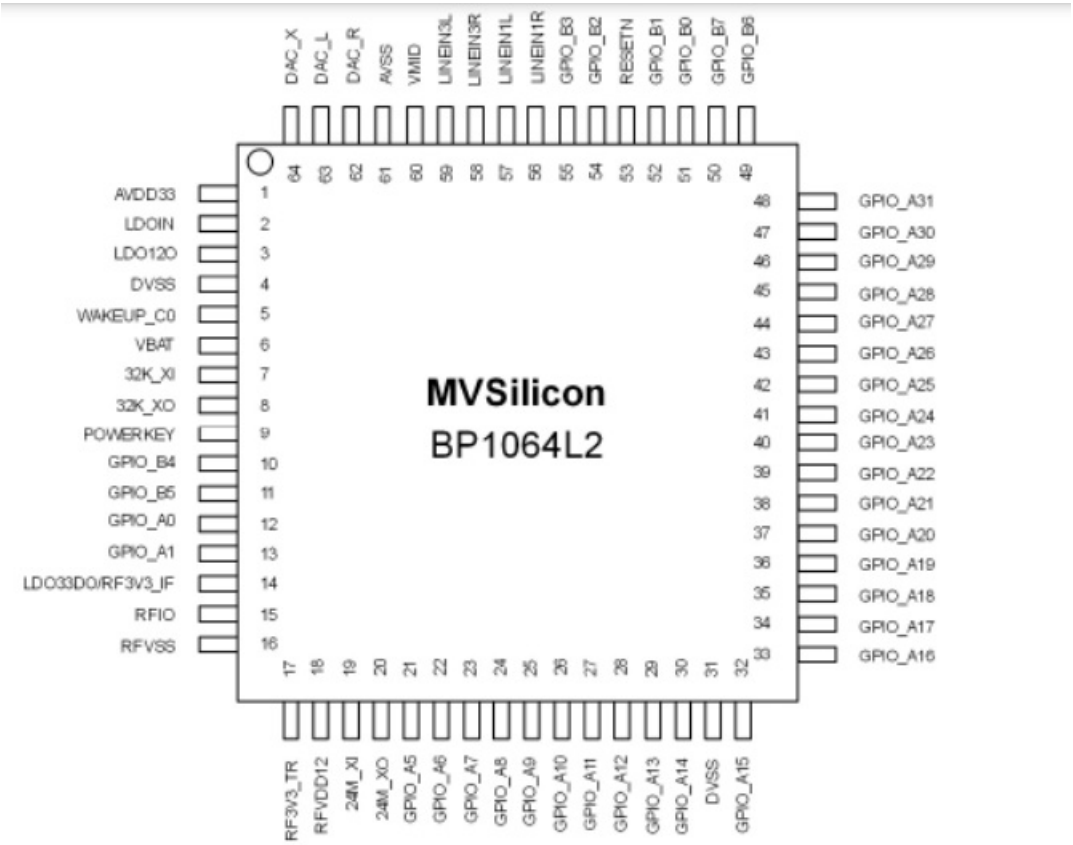
Functional Block Diagram



DSP processing block diagram



Pin Definition



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

We will retain control over the final installation of the modular such that compliance of the end product is assured. In such cases, an operating condition on the limit modular approval for the module must be only approved for use when installed in devices produced by a specific manufacturer. If any hardware modification or RF control software modification will be made by the host manufacturer, C2PC or a new certificate should be applied to get approval, if those changes and modifications made by the host manufacturer are not expressly approved by the party responsible for compliance,then it is illegal

FCC Radiation Exposure Statement

The modular can be installed or integrated in mobile or fix devices. This modular cannot be installed in any portable device if without any further certify include C2PC with SAR. 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. This modular must be installed and operated with a minimum distance of 20 cm between the radiator and user body.

IC STATEMENT

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device

IC Radiation Exposure Statement
The modular can be installed or integrated in mobile or fix devices only. This modular cannot be installed in any portable device.

This modular complies with IC 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. This modular must be installed and operated with a minimum distance of 20 cm between the radiator and user body. Cette modulaire doit être installé et utilisé à une distance minimum de 20 cm entre le radiateur et le corps de l'utilisateur.
If the IC number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains IC: 6132C-BP1064L2"
when the module is installed inside another device, the user manual of this device must contain the below warning statements;
This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science, and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device

Documents / Resources

	HARMAN BP1064L2 Bluetooth Module [pdf] Instruction Manual BP1064L2, 2AUHE-BP1064L2, 2AUHEBP1064L2, Bluetooth Module, BP1064L2 Bluetooth Module