

Operation description

Bluetooth

1. **Purpose:** The purpose of this document is to describe key component operations on Bluetooth.

Key components: This document describes the version of software used in BlueCore2-Headset v1.2 (BC213159A20).

2. **Operation Principle:**

power 12v to 24v operation

Operation clock is provided by 16MHz oscillator.

Key Features

Radio

- Operation with common TX/RX terminal simplifies external matching circuitry and eliminates external antenna switch
- Bist minimizes production test time
- No external trimming is required in production
- Full RF reference designs are available
- Bluetooth V2.0+EDR specification compliant

Transmitter

- +6dBm RF transmit power with level control from on-chip 6-bit DAC over a dynamic range >30dB
- Supports Class 2 and Class 3 radios without the need for an external power amplifier or TX/RX switch
- Support Class 1 radio with an external power amplifier provided by a power control terminal controlled by an internal 8-bit voltage DAC and an external RF TX/RX switch

Receiver

- Integrated channel filters
- Digital demodulator for improved sensitivity and co-channel rejection
- Digitized RSSI available in real time over the HCI interface
- Fast AGC for enhanced dynamic range

Auxiliary Features

- Crystal oscillator with built-in digital trimming
- Power management includes digital shutdown and wake up commands and an integrated low power oscillator for ultra-low Park/Sniff/Hold mode power consumption
- Devices can be used with an external Master oscillator and provides a clock request

signal. To control external clock source.

- Uncommitted 8-bit ADC and 8-bit DAC are available to application programs

Baseband and software

- Internal 6Mbit ROM

- Internal 48kb RAM to support EDR..allows full speed Bluetooth data transfer, mixed voice and data and full piconet operation

- Logic for forward error correction, header error control, access code correlation, CRC, demodulation, encryption bit-stream generation, whitening and transmit pulse shaping

- Transponders for A-law, μ -law and linear voice from host and A-law, μ -law and CVSD voice over air

Physical Interfaces

- Synchronous serial interface up to 4Mbaud for system debugging

- UART interface with programmable Baud rate up to 3Mbaud with an optional bypass mode

- Full speed USB v1.1 interface supports OHCI and UHCI host interfaces. Compliant with USB v2.0

- optional I²CTM compatible interface

Audio Codec

- 15-bit resolution, 8KHz sampling frequency

- Digital enhancements to add bass cut, side tone and treble boost

- Analogue enhancements to support single-ended speaker drive capability and reference availability

Bluetooth Stack

CSR's Bluetooth Protocol Stack runs on-chip in a variety of configurations:

- Standard HCI (UART or USB)

- Fully embedded to RFCOMM

- Customised builds with embedded application code