Technical description(UBTCR3C1E)

Main chipset BC03-ROM(BlueCore^{TM}3-ROM) features as below :

Radio
   Common Tx/Rx terminals
   Bluetooth v1.2 specification compliant

Transmitter
   +6dBm RF transmit power with level control from on-chip 6-bit DAC a dynamic range >30dB
   Class 2 and Class 3 support without the need for an external power amplifier or Tx/Rx switch
   Class 1 support using external power amplifier , with RF power controlled by an Internal 8-bit DAC

Receiver
   Integrated channel filters
   Digital demodulator for improved sensitivity and co-channel rejection
   RSSI(Receiver signal strength Indicator)
   AGC(Automatic Gain Control)

Synthesizer
   Full integrated synthesizer requires no external VCO varactor diode , resonator or Loop filter
   compatible with crystals between 8 and 32 MHz or an external clock
   Accepts 15.36 , 16.2, 16.8, 19.2, 19.44, 19.68, 19.8, 38.4MHz TCXO frequencies for GSM and CDMA devices with either sinusoidal or logic level signals

Auxiliary features
   On-chip linear regulator, producing 1.8v output from 2.2-5.6 v input
   Crystal oscillator with built-in digital trimming

Baseband and software
   internal programmed 4Mbit ROM for complete system solution
   32Kbyte on-chip RAM allows full speed Bluetooth data transfer, mixed voice and data, plus full seven slave Piconet operation
   FEC(Forward error correction)
   CRC(Cyclic redundancy check)

Physical interfaces
   SPI(serial peripheral interface)
   UART(Universal Asynchronous Receiver Transmitter)
   USB(Universal Serial Bus)
   PIO(Parallel input Output)
   PCM(Pulse Code Modulation)

Function description

USB

This device is operated the USB(full speed) interface for communicating with other compatible digital device(ex. From a master host controller such as a PC).The device (USB Bluetooth Dongle) acts as a USB peripheral and offers the service as below:

(some services must meets BC03-ROM firmware and host hardware)

Audio Gateway
File transfer
PIM Item transfer
Bluetooth serial port
Head set
PIM synchronization
Dual-up Networking
Network Access

A USB Bluetooth device is required to provide a software interface between Bluetooth BlueCore-ROM and Bluetooth software running on the host computer.

EEPROM

The EEPROM is written the initial data (configure data) for BC03-ROM running firmware. Some of the initial data can be configured (modify) during design period.

REGULATOR (5 => 3.3V)

The BC03-ROM have a internal 1.8V regulator and they need an external regulator. This device is operated the Bus Power Mode. In bus powered mode the application circuit draws its current from 5V VBUS supply on the USB cable.

Crystal

The reference clock for the system is generated from crystal. All internal reference clocks are generated using a phase locked loop, which is locked to the external reference.

Balun and Switch and Filter and Antenna

The BC03-ROM RF_IN terminal can be configured as either a single ended(class 1) or differential input(class 2 , class 3). Terminal TX_A and TX_B form a balanced current output. They require a DC path to VDD and should be connected through a balun to the antenna. For class 2 operation these terminals also act as differential receive input terminals with an internal TX/RX switch. For class 1 operation(this case) an external antenna switch is required. The filter is operated as a band pass filter and it can reject other frequencies we don't want.

LNA and PA

The internal LNA can be configured to operate in single-ended or differential mode and the BlueCore3-ROM allowing used in class 2 and class 3 radios without an external RF LNA. The internal power amplifier has a maximum output power of +6dBm allowing BlueCore3-ROM to be used in class 2 and class 3 radios without an external RF PA. Support for transmit power control and receiver sensitivity allows a simple implementation for class 1(in this case) with an external RF PA and RF LNA.