

## MOD-BT development board

## Users Manual



All boards produced by Olimex are ROHS compliant

Rev. B, September 2009  
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## **INTRODUCTION**

**MOD-BT** is development board with UEXT female connector, which connected to other Olimex board with UEXT male connector can work as bluetooth serial port via RS232.

## **BOARD FEATURES**

- BGB203 - combines the Bluetooth RF part, protocol stack, Link Controller (LC), Link Manager (LM), and Host Controller Interface (HCI) firmware of the Bluetooth system specification in one SiP with embedded software. Together with an antenna and a reference clock this device forms a complete Bluetooth solution.
- UEXT female connector
- on-board antenna
- three types power supply - 1.8V, 2.8V and 3.3V
- PCB: FR-4, 1.5 mm (0,062"), soldermask, silkscreen component print
- Dimensions: 35.9x18.8 mm (1.41 x 0.74")

## **ELECTROSTATIC WARNING**

The MOD-BT board is shipped in protective anti-static packaging. The board must not be subject to high electrostatic potentials. General practice for working with static sensitive devices should be applied when working with this board.

## **BOARD USE REQUIREMENTS**

**Hardware:** Some of our development boards with UEXT male connector.

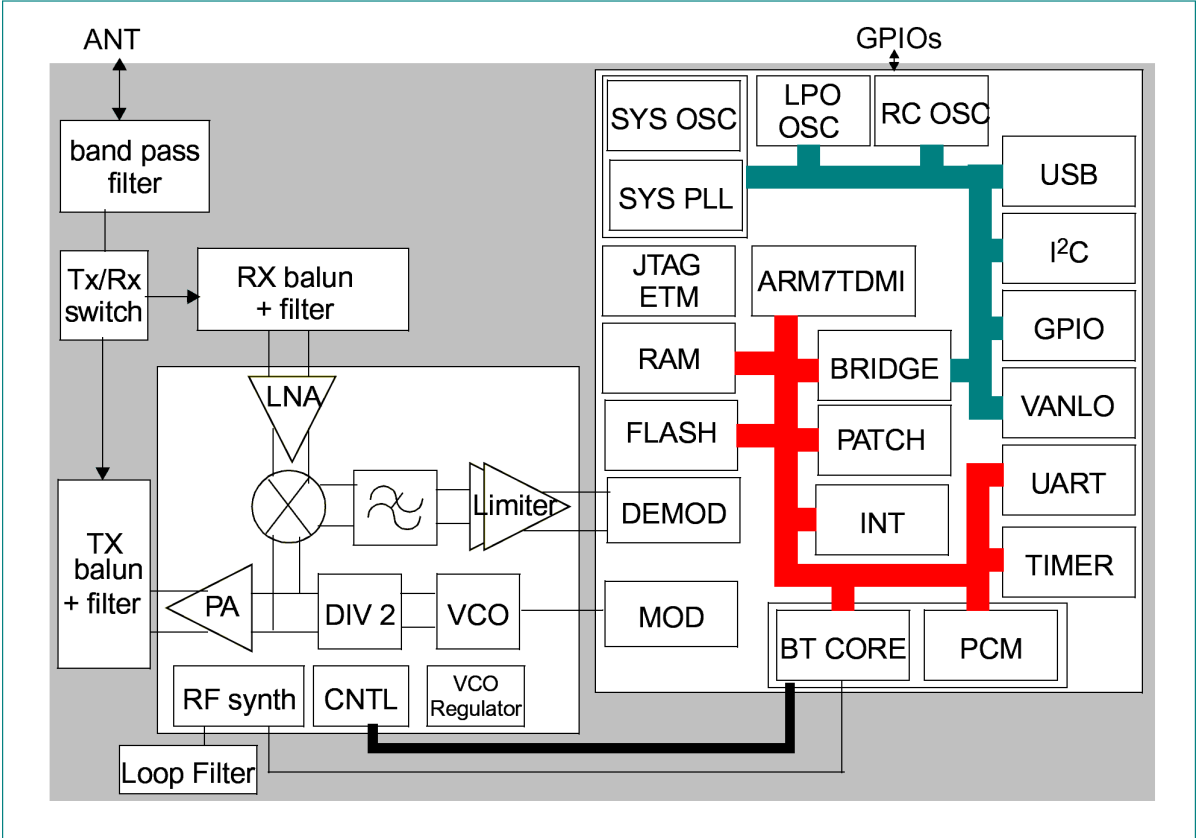
## Bluetooth Controller Features

**MOD-BT** board use BGB203 bluetooth system-in-a-package radio with baseband controller with these features:

- General
  - Plug-and-play Bluetooth class 1 System-in-a-Package (SiP)
  - Includes all baseband and radio functionality, from HCI up to antenna, needs only external antenna and reference clock.
  - Fully compliant to Bluetooth Radio Specification version 1.2.
- Radio hardware
  - Fully integrated near-zero-IF receiver with high sensitivity (typical -88 dBm at antenna input)
  - Digital demodulator for improved reception quality
  - RSSI with high dynamic range
  - Programmable output pre-amplifier
  - Maximum output power up to +5.5 dBm typical
  - Includes high performance blocking filter for co-existence in GSM/DCS/WCDMA applications
  - Fully integrated low phase noise VCO operating in the 5 GHz frequency range
- Hardware features
  - Bluetooth burst mode controller with:
    - Ciphering, scrambling, CRC checking/generation, FEC encoding/decoding and data buffering control
    - Support for 7 slaves and three piconets, support of master-slave switch for new nodes entering the piconet, scatternet support with maximum one slave in master piconet while being slave in another piconet, support for 2 voice channels.
    - BT1.2 features :
      - Fast connection
      - EV3 (HV3+CRC)
      - AFH IP : AFH switch support as master, Channel assesment as master
  - Embedded 32-bit microprocessor consisting of
    - An ARM7TDMI-S RISC controller featuring low mW/MHz
    - Integrated Flash memory : 268 kBytes.
    - SRAM : 40 kBytes.
  - Voice processing with
    - A CVSD, A-law or m-law.

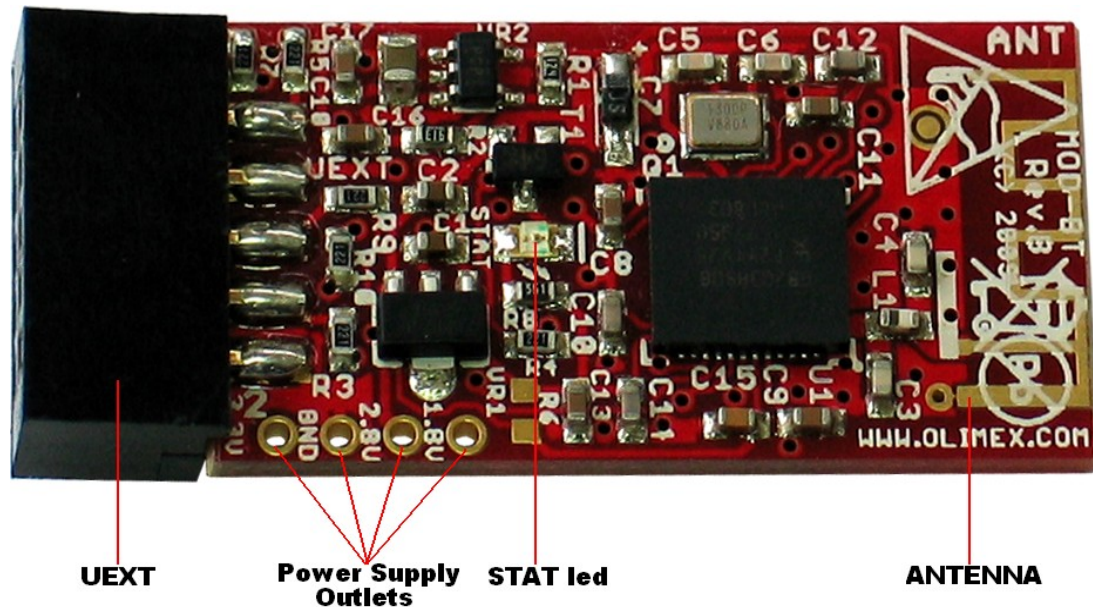
- Support of a direct link between PCM interface and BT1.2 core for the voice channels.
- Power management providing
  - Power-on reset
- Clocking
  - Low power clock crystal oscillator for low power mode, accepting 3.2KHz, 32KHz, and 32.768KHz.
  - Low-power system clock crystal oscillator with programmable on-chip capacitors for frequency adjustment with large pulling range accepting the frequency 12MHz, 13MHz, 24MHz and 26 MHz.
- Microprocessor interfaces
  - General purpose I/O-pins
  - I<sup>2</sup>C-bus interface
  - Multi port PCM interface (linear and log PCM up to 16 bit/sample supported)
  - UART with hardware handshake and IrDA support
  - USB interface (vddio2 : 3.3V).
  - System timers
  - Watch dog timer
  - JTAG for ICE and flash memory programming
  - ETM7 for real time trace.
  - Patch interface for ROM version emulation.
- Voltage range
  - Radio 2.75 V
  - Core 1.8 V
  - Peripheral pins 1.8 and 3.3V

# BLOCK DIAGRAM





## BOARD LAYOUT



## POWER SUPPLY CIRCUIT

MOD-BT is typically power supplied by UEXT pin 1 and pin 2 with 3.3V.

There are two more power supplies – 2.8V for Radio and 1.8V for the core.

## RESET CIRCUIT

MOD-BT reset circuit includes pin 6 of UEXT connector, pin 43 (RESET\_N) of U1 and C15 (10nF).

## CLOCK CIRCUIT

Quartz crystal 13 MHz is connected to **BGB203** pin 20 (XTAL1\_SYS) and pin 19 (XTAL2\_SYS).

## JUMPER DESCRIPTION

There are no jumpers on this board.

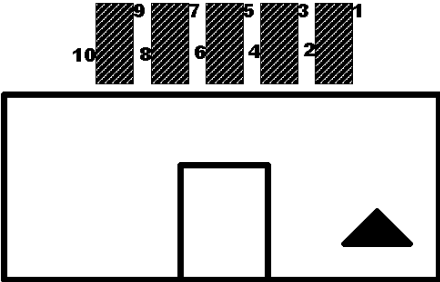
## INPUT/OUTPUT

**Status led (yellow)** with name **STAT** - this led shows that +3.3V is applied to the board.

**CONNECTOR DESCRIPTIONS**

**UEXT**

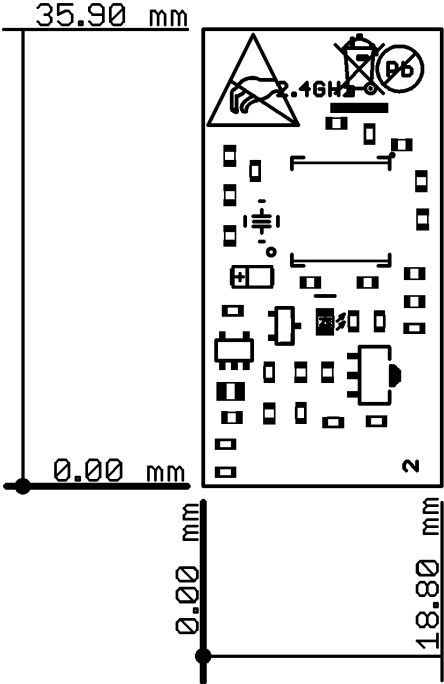
| Pin # | Signal Name |
|-------|-------------|
| 1     | 3.3V        |
| 2     | GND         |
| 3     | RXD         |
| 4     | TXD         |
| 5     | STAT        |
| 6     | RST         |
| 7     | CTS         |
| 8     | RTS         |
| 9     | DSR         |
| 10    | DTR         |



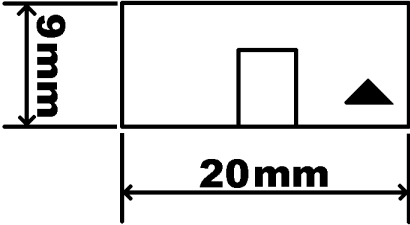
**POWER SUPPLY OUTLETS**



MECHANICAL DIMENSIONS



UEXT measures



## **ORDER CODE**

MOD-BT - completely assembled and tested

How to order?

You can order to us directly or by any of our distributors.

Check our web [www.olimex.com/dev](http://www.olimex.com/dev) for more info.

### **Revision history:**

REV. B                    - create   September 2009

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