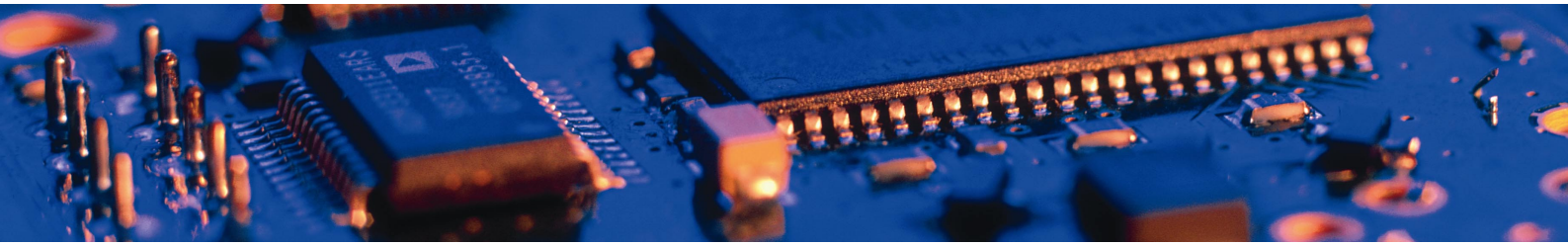

Bluetooth IO Development Board

cB-0911

User Guide

connectBlue

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Contents

1 Introduction

This documents describes the user functionality of the Bluetooth IO Development Board, which is used to verify applications based on the Bluetooth IO Module. See Related Documents below for more info about the functionality of the Bluetooth IO.

The Bluetooth IO Development Board is equipped with LEDs, switches and pin-lists for each IO. It is also possible to connect external LEDs and switches to some of the IOs (see section 2.2 for more info).

1.1 Bluetooth IO Development Kit

The Bluetooth IO Development Kit contains:

- Two Bluetooth IO Development Boards
- Two Bluetooth IO Modules mounted on the Development Boards.
- One serial null modem cable
  Used for configuring the modules.
- Two USB power supply cables
  Used to power supply the boards from a USB port.
- One CD
  Containing manuals, firmware and software tools.

1.2 Related Documents

- The **Bluetooth IO Module Functional Description and AT Commands Specification** describes the functionality of the Bluetooth IO Module. The Bluetooth IO functionality is implemented using a simple protocol on top of the Bluetooth Serial Port Profile (SPP). Much of the functionality remains the same as for the standard SPA but additionally to this it is possible to use some of the connectors as inputs or outputs.
- The **Serial Port Adapter AT Commands** document contains a description of the AT commands supported in the Serial Port Adapter. It also contains information on how to use the AT commands to create Bluetooth applications.
- The **OEM Serial Port Adapter Electrical & Mechanical Datasheet** contains important information about Bluetooth OI hardware. The hardware is the same as the OEM Serial Port Adapter. Read this document if you are interested in the mechanical and electrical specification of the Bluetooth IO.

1.3 Quick start

The boards are factory configured with one board as a client and one as a server. The client is configured to connect to the server, the client module can be detected by power-on only one device at a time and the client module should turn the Status LED (see section 2.3) blue for 5 seconds.

The client board is also factory configured with the 6 first IOs as outputs and the 6 last IOs as inputs and the reverse configuration on the server board (see Table 1).

To test the functionality on the Development Board follow the simple steps below:

1. Connect the power cable to the Development Board.
2. Press on the buttons SW1 - SW6 (IO-0, IO-1, IO-4, IO-6, IO-8, IO-9) on the server board, which is configured as input on the server board. The LEDs on client will light according the button presses.
3. Test the inputs on the client board SW9-SW14 (IO-10 – IO-15) in the same way.

1.4 Hardware overview

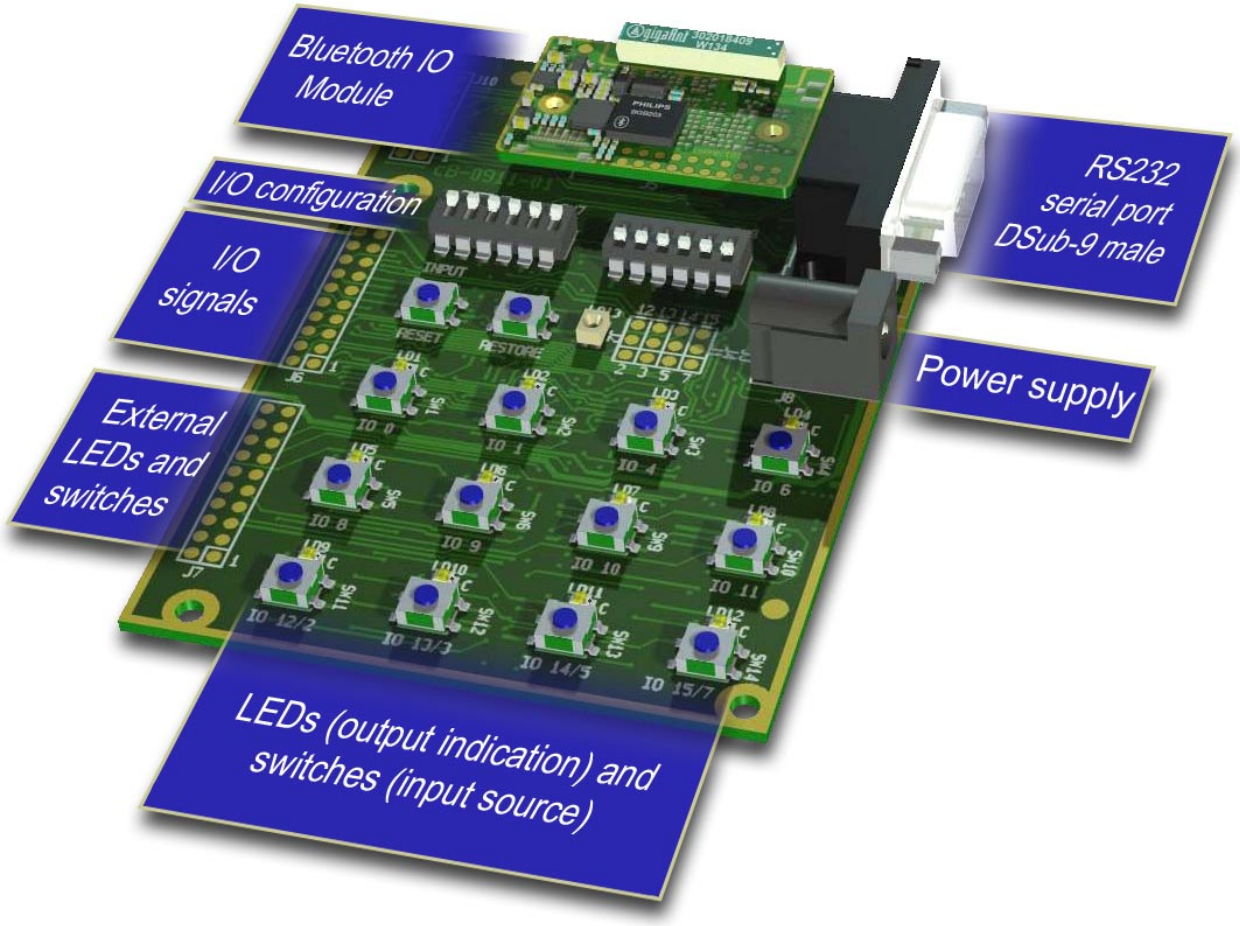

Figure 1 - The Bluetooth IO Development Board disposition.

1.5 Block Diagram

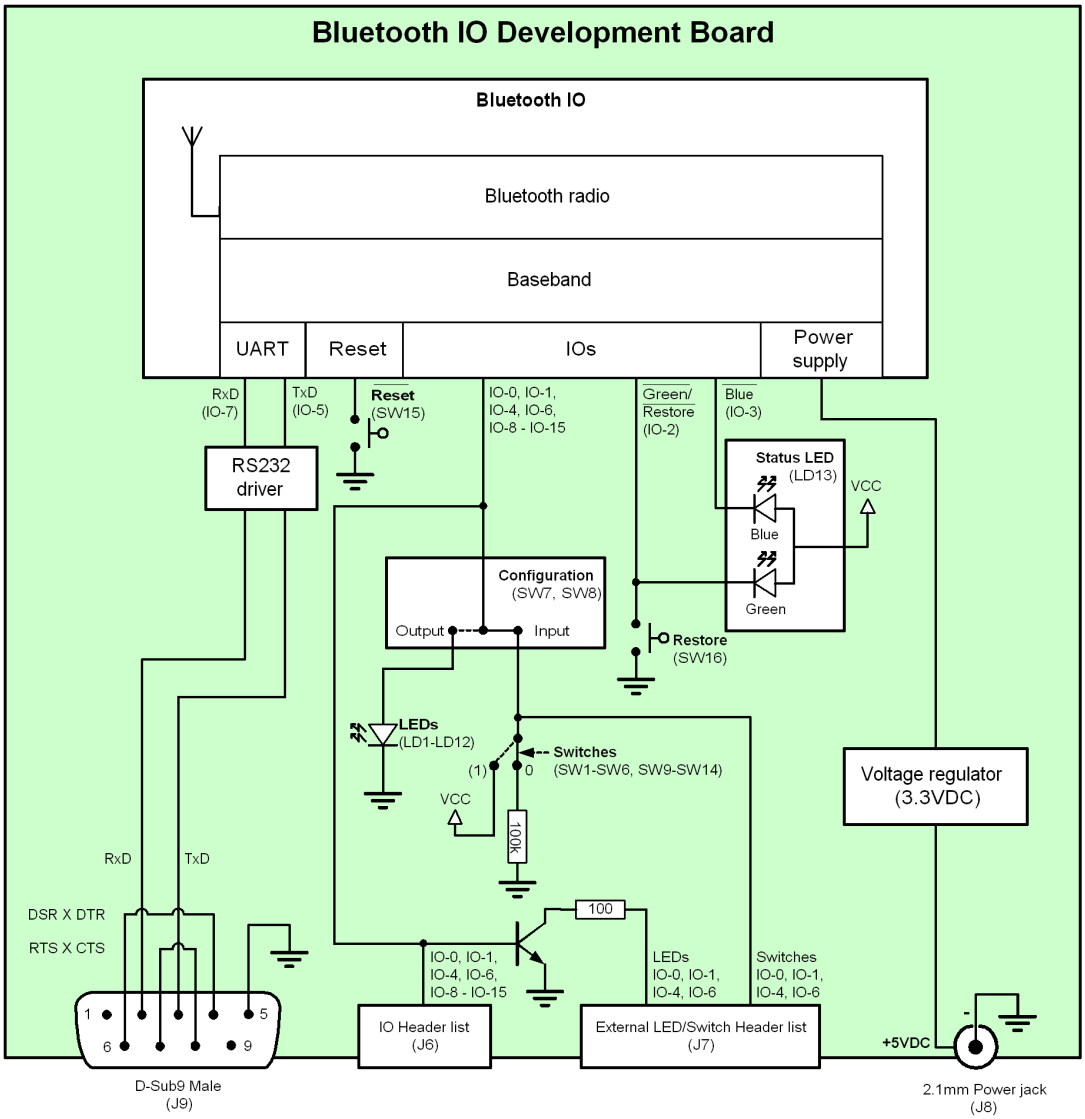

Figure 2 - Block diagram of the Bluetooth IO Development Board. Notice that this is only a symbolic diagram and all components are not included.

2 Electrical Interface and Connectors

2.1 Configuration

Each IO is configured to be an input or output. The Bluetooth IO Development Board hardware configuration needs to match the software configuration of the Bluetooth IO module. The Bluetooth IO Development Board is configured with the DIP switches SW7 and SW8 (see Table 1) and see the “Bluetooth IO Module Functional Description and AT Commands Specification” for info how to configure the module.

In the factory configuration one board is configured as a client one as a server. The client board is factory configured with the 6 first IOs as outputs and the 6 last IOs as inputs and the reverse configuration on the server board (see Table 1). The client module can also be detected by powering only one device at a time and the client module should turn the Status LED (see section 2.3) blue for 5 seconds.

2.2 IOs

The Bluetooth IO Development Board is equipped with LEDs, switches and pin-lists for each IO. It is also possible to connect external LEDs and switches to some of the IOs (see Table 1).

Table 1: Signals on J2

Signal	Configuration DIP switch	LED	Switch	Signal pin number J6	External LED/SW pin number J7	Factory configuration
IO-0	SW8-6	LD1	SW1	1	LED: 9 SW: 1 Conf: 10	Client: Output Server: Intput
IO-1	SW8-5	LD2	SW2	2	LED: 11 SW: 3 Conf: 12	Client: Output Server: Intput
IO-2	Used for Green LED / Restore Default Settings and not available as IO*					
IO-3	Used for Blue LED and not available as IO*					
IO-4	SW8-4	LD3	SW3	5	LED: 13 SW: 5 Conf: 14	Client: Output Server: Intput
IO-5	Used for UART-TxD and not available as IO*					
IO-6	SW8-3	LD4	SW4	7	LED: 15 SW: 7 Conf: 16	Client: Output Server: Intput
IO-7	Used for UART-RxD and not available as IO*					
IO-8	SW8-2	LD5	SW5	9	-	Client: Output Server: Intput
IO-9	SW8-1	LD6	SW6	10	-	Client: Output Server: Intput

Signal	Configuration DIP switch	LED	Switch	Signal pin number J6	External LED/SW pin number J7	Factory configuration
IO-10	SW7-6	LD7	SW9	11	-	Client: Input Server: Output
IO-11	SW7-5	LD8	SW10	12	-	Client: Input Server: Output
IO-12	SW7-4	LD9	SW11	13	-	Client: Input Server: Output
IO-13	SW7-3	LD10	SW12	14	-	Client: Input Server: Output
IO-14	SW7-2	LD11	SW13	15	-	Client: Input Server: Output
IO-15	SW7-1	LD12	SW14	16	-	Client: Input Server: Output
$\overline{\text{RESET}}$	-	-	SW15	17	-	
VCC_3V3	-	-	-	20	2, 4, 6, 8, 20	
GND	-	-	-	19	19	

* Possible to use as IO with alternative mounting, please contact connectBlue for more info

2.3 Serial Port Adapter Functionality

The Bluetooth IO modules are based on the connectBlue OEM Serial Port Adapter (cB-OEMSPA) products and the IO functionality is added on top of the cB-OEMSPA (see the Serial Port Adapter AT Commands document). The serial settings can be restored to factory settings (57600bits/s, 8 data bits, 1 stop bit, no parity) with the Restore switch (SW16) and the status is indicted with Status RGB LED (the red LED is not used).

2.4 Serial Port

The serial port of the Bluetooth IO module is accessible via a D-Sub9 male connector on the Development Board to be able to configure the module and upgrade the firmware. Only the data signals (RxD and TxD) are available. The flow control and modem signals are crossed on the Development Board (see Figure 2).

2.5 Bluetooth IO Module

The Bluetooth IO module should be mounted with two M2 screws on the J5 connector. See Figure 1 for the orientation of the module.

2.6 Power Supply

The development board can be supplied with the delivered USB to 2.1mm power jack cable. The USB connector should be connected to a USB port that can deliver 100mA. The Development Board requires 5.0±0.5 VDC, 100mA power supply.