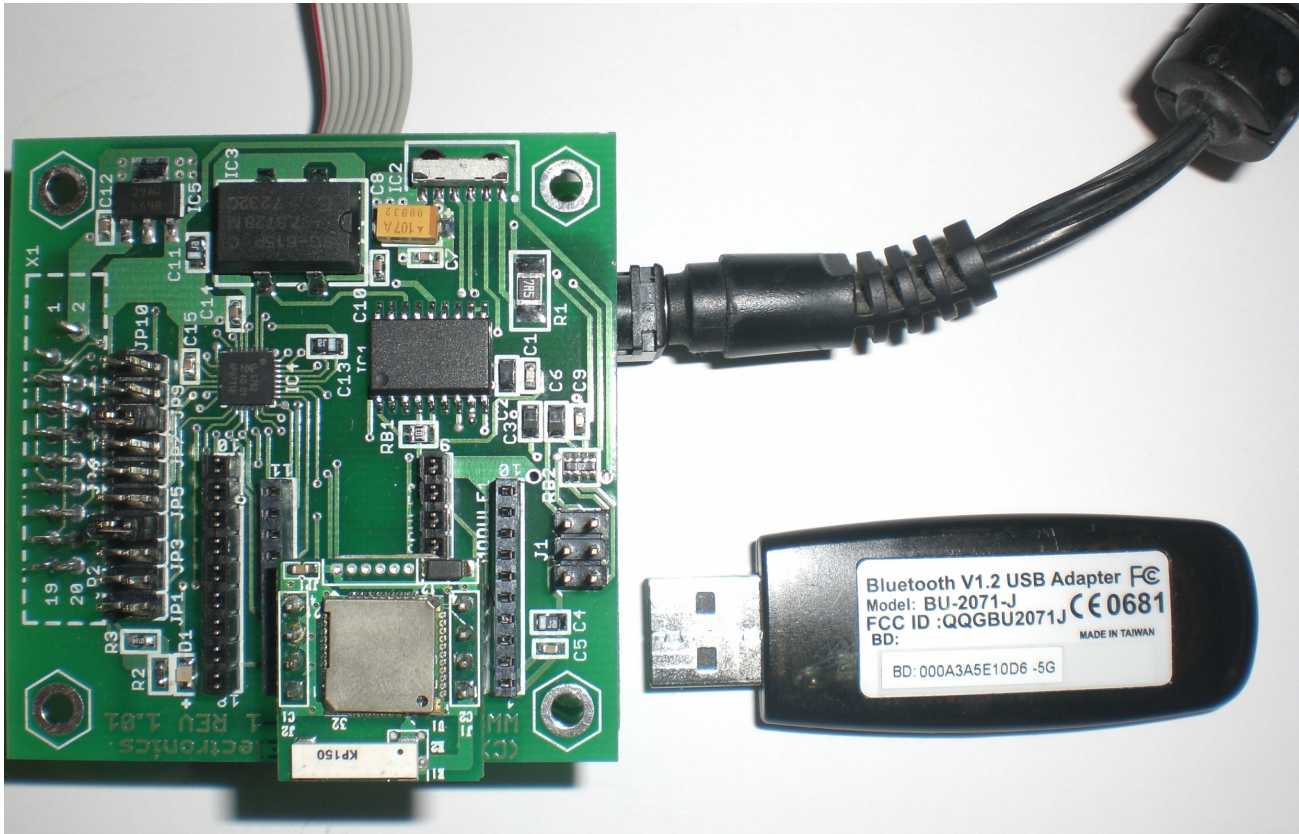


How to get started With

CB-1-PBT Peripheral Board Promi ESD-02 Bluetooth Module



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1. Introduction.

The document describes how to establish Bluetooth connection between a CB-1 peripheral board with a pre-installed Promi ESD-02 Bluetooth module and a standard Bluetooth serial dongle connected to a PC's USB port.

The complete hardware test setup consists of the following parts:

- MINI-MAX/ARM-C board;
- 6VDC power supply;
- CB-1-PBT peripheral board with Promi ESD-02 Bluetooth module;
- PC with Bluetooth serial dongle.

ARM7 development system from BiPOM Electronics provides the complete firmware test setup.

2. USB serial dongle setup.

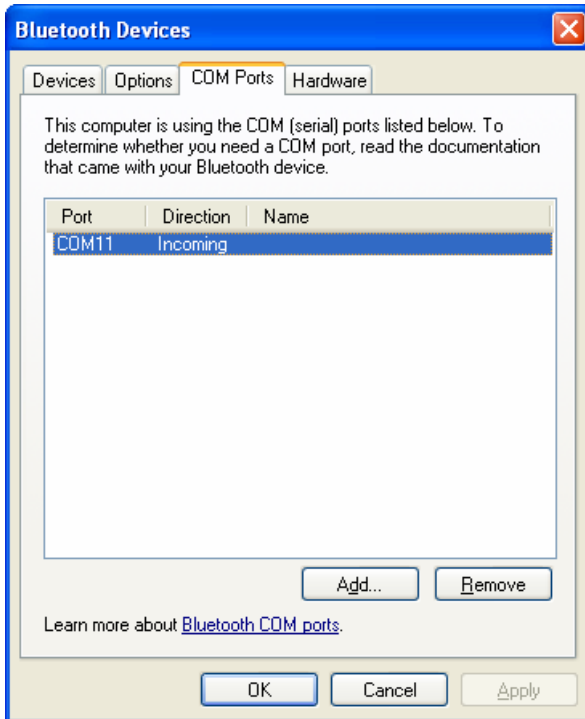
2.1. Connect a Bluetooth serial dongle to a PC's USB port and install all necessary drivers according to instructions provided by a manufacturer.

2.2. To get started the dongle should provide 1 incoming COM port at the 1st stage.

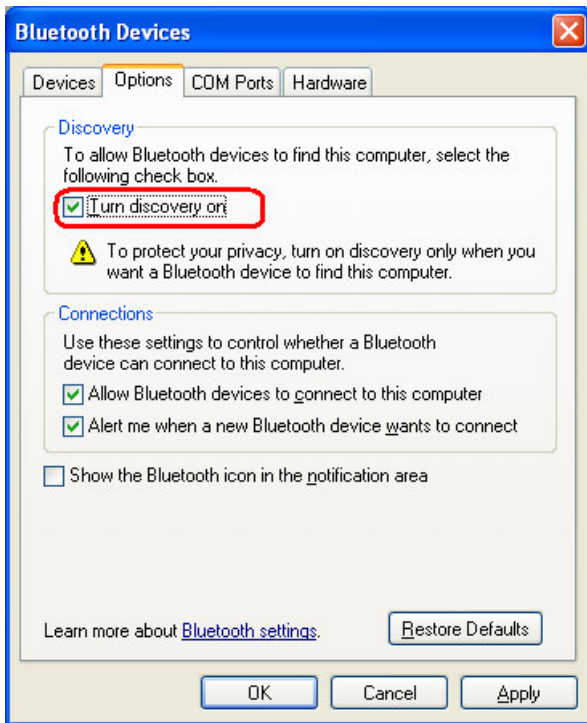
Please click either Bluetooth icon on system tray or Bluetooth devices under Control Panel.



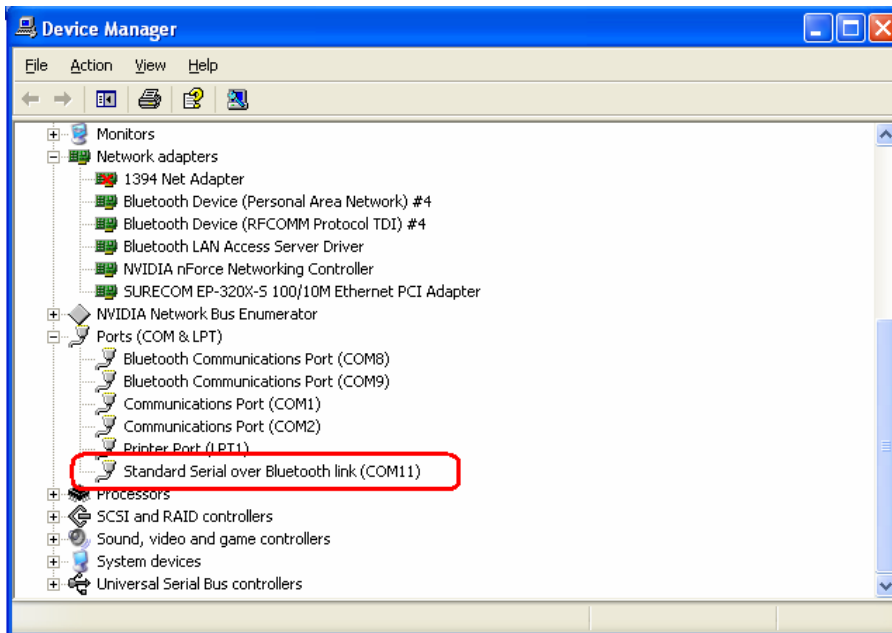
and check properties



Also, please check if external Bluetooth devices can find a PC.



2.2. Check if the incoming COM port is visible under Device Manager window.



3. Software setup.

3.1. Download and install ARM Development System from

<http://www.bipom.com/armdev.php>

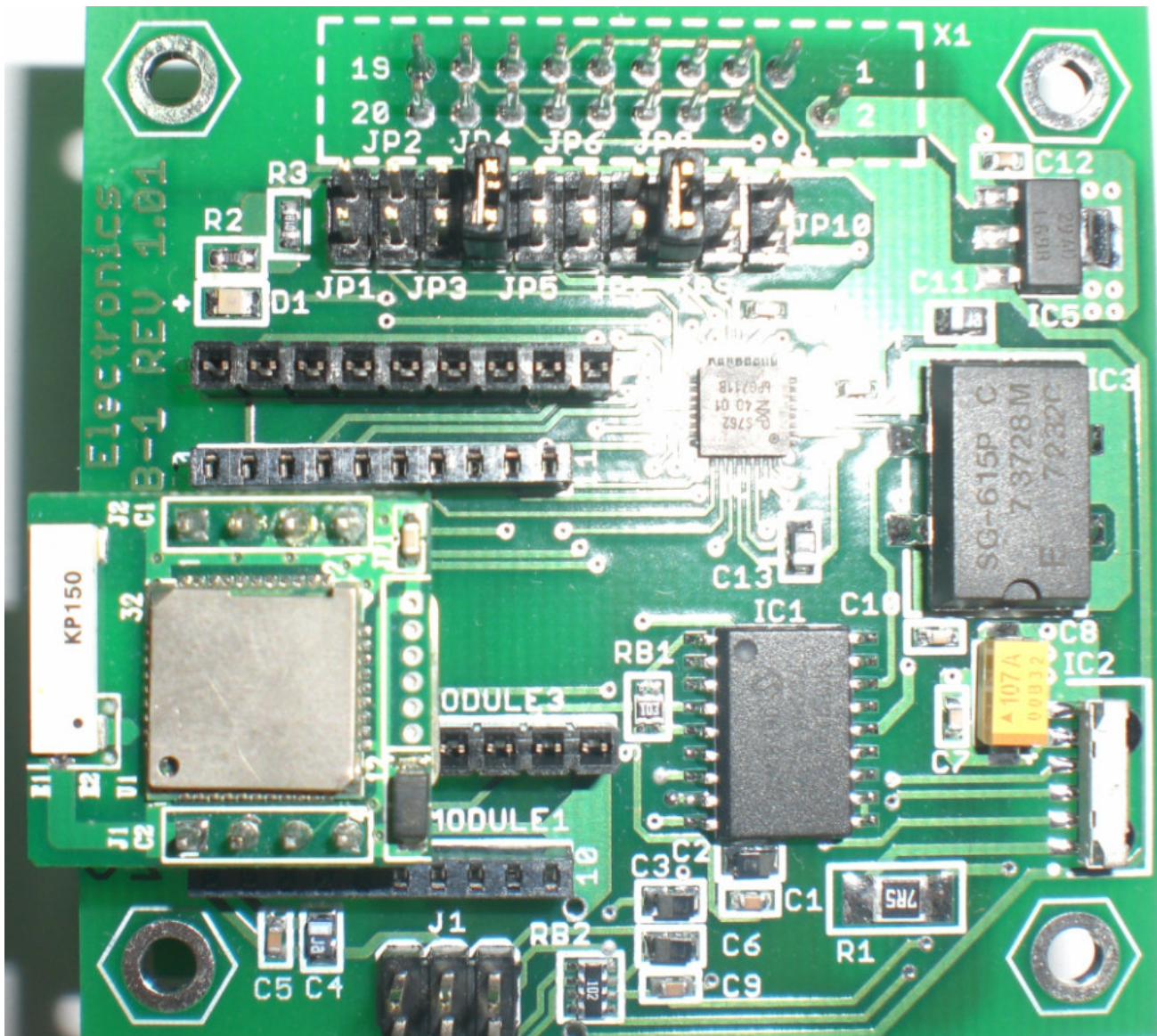
3.2. Download and install GNU ARM C compiler from

http://www.bipom.com/devsys/gnuarm7gcc_4.1.1.exe

Please install the compiler to its default location "C:\Program Files\GNUARM".

4. Hardware setup.

4.1. Install Promi ESD-02 module, JP4 & JP8 jumpers to CB-1-PRB board according to the picture.



4.2. Connect a NULL-modem cable between MINI-MAX /ARM-C and a PC's COM port.

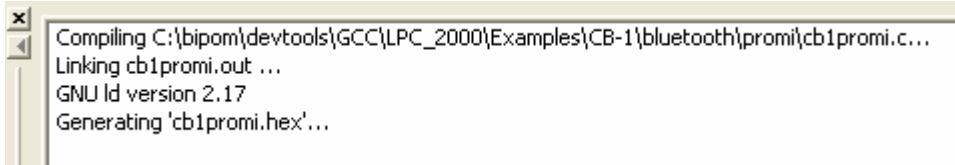
4.3. Install a CB-1-PRB peripheral board on top of Mini-Max/ARM-C board.

4.4. Power the setup

5. Firmware Setup.

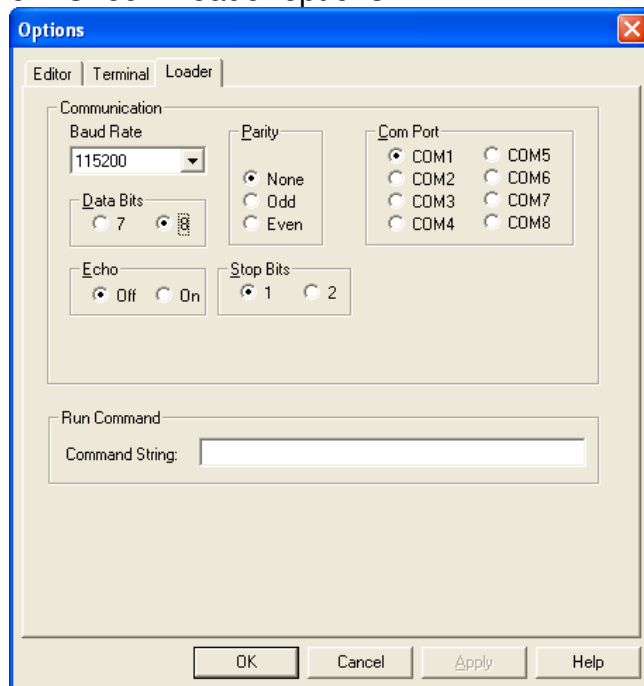
To get started with the setup it is necessary to download the firmware to Mini-Max/ARM-C board.

5.1. Run Micro-IDE and open C:\bipom\devtools\GCC\LPC_2000\Examples\CB-1\bluetooth\promi\cb1promi.prj using Project->Open Project menu option. Press "Build-All" icon button

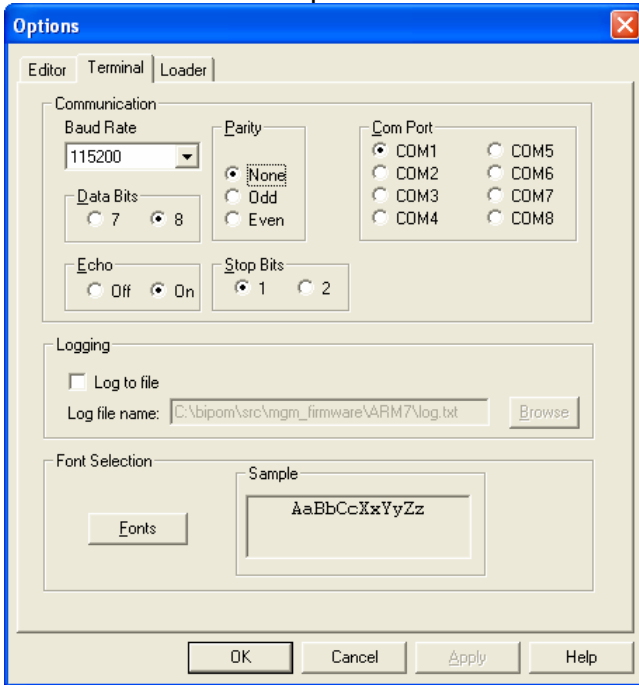


This project builds cb1promi.hex file

5.2 Check Loader options



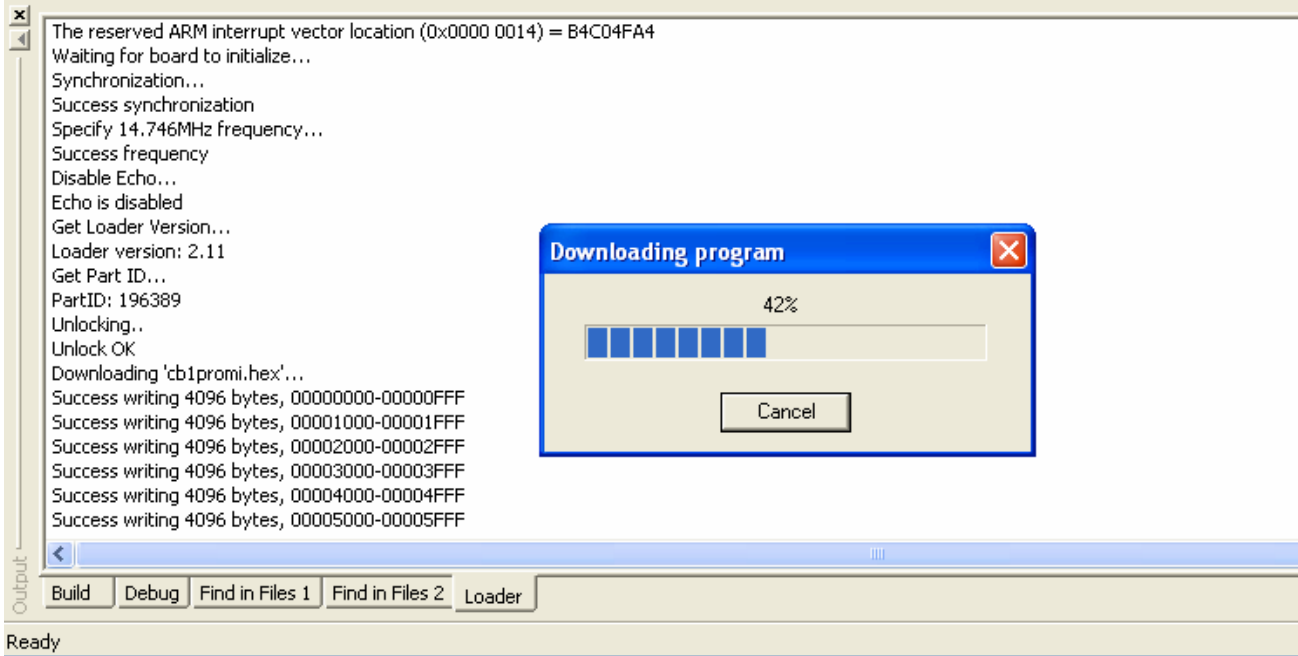
5.3 Check Terminal options



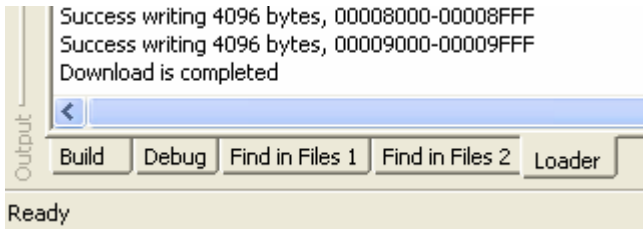
Please pay attention to Echo section. "On" should be checked.



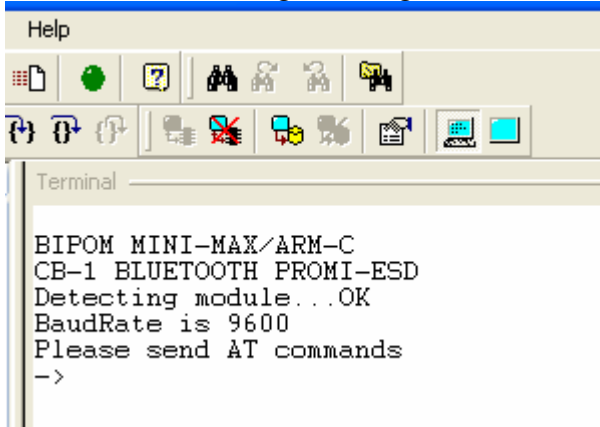
5.4. Press "Download" icon button to start download procedure



5.5 Check if download is completed



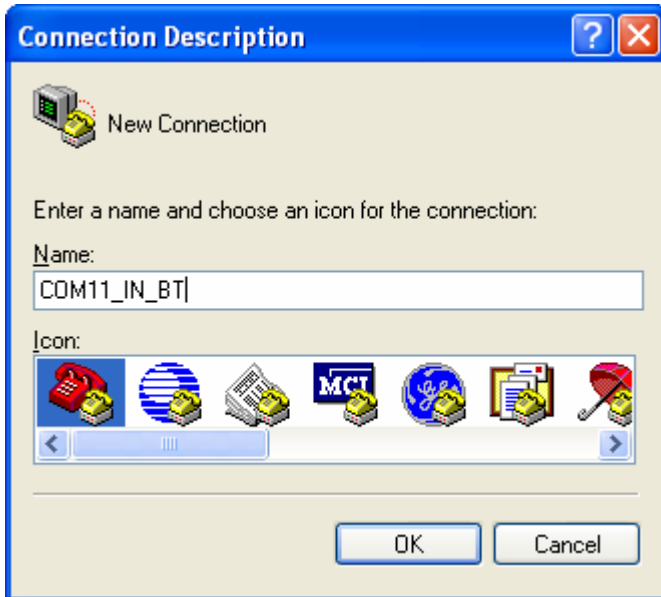
5.6 Press "Connect" icon button and change "Set Mode" icon button to GREEN. The example should start sending messages to Micro-IDE terminal.



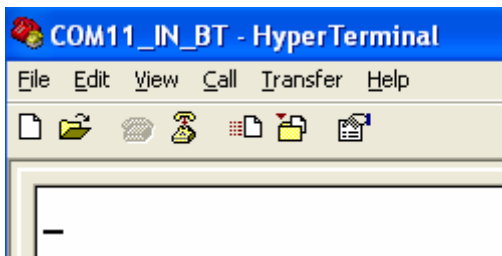
5.7. Check if D1 LED on CB-1 board is switched ON.

6. Connection from the setup to PC.

6.1 Run HyperTerminal under Start->Accessories->Communications-> HyperTerminal and create new connection



6.2 Press "Call" icon button to connect HyperTerminal to COM11.



6.3 Switch to Micro-IDE terminal and check if a CB-1 board replies. Just type AT and press <ENTER>.

```
Terminal
BIPOM MINI-MAX/ARM-C
CB-1 BLUETOOTH PROMI-ESD
Detecting module...OK
BaudRate is 9600
Please send AT commands
->AT

OK
|
```

6.4. AT+BTNAME="name" command can be used to assign user friendly device name.

AT+BTNAME="CB-1 board"
OK

6.5 AT+BTKEY="key" command can be used to change a passkey.

AT+BTKEY="1"
OK

6.6 AT+BTMODE, MODE command can be used to change current mode.

AT+BTMODE,0
OK

MODE 0 is the default.

MODE 1, a board will try to make connection to most recently connected Bluetooth device.

MODE 2, a board will wait connection from most recently connected Bluetooth device

MODE 3, a board does INQUIRY SCAN and PAGE SCAN alternately.

6.7 To obtain information about the internal status AT+BTINFO? command can be used.

AT+BTINFO?
000B53132B46,CB-1 board,MODE0,STANDBY,0,0

OK

The response is comprised of BD_ADDR, Device Name, Operating Mode, Operating Status, Authentication and Encryption flags. To make connection to other Bluetooth devices, the operating status should be 'STANDBY'.

A 'PENDING' operating status indicates the unit is busy with another operation.

In this case, cancel the ongoing operation by entering the 'AT+BTCANCEL' command.

6.8. AT+BTINQ? can be used to search (INQUIRY) other Bluetooth devices nearby.

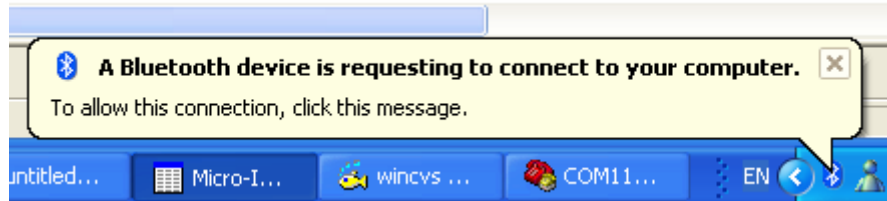
AT+BTINQ?
000A3A5E10D6,VITALIY,020104
OK

6.9 **000A3A5E10D6** is 48-bit BD_ADDR address of Bluetooth serial dongle. ATD BD_ADDR command can be used to make connection with the given BD_ADDR.

ATD 000A3A5E10D6
OK

As soon as the command is executed the board will request to connect to a PC.

Click the message



Enter a passkey which is defined by AT+BTKEY="key" command



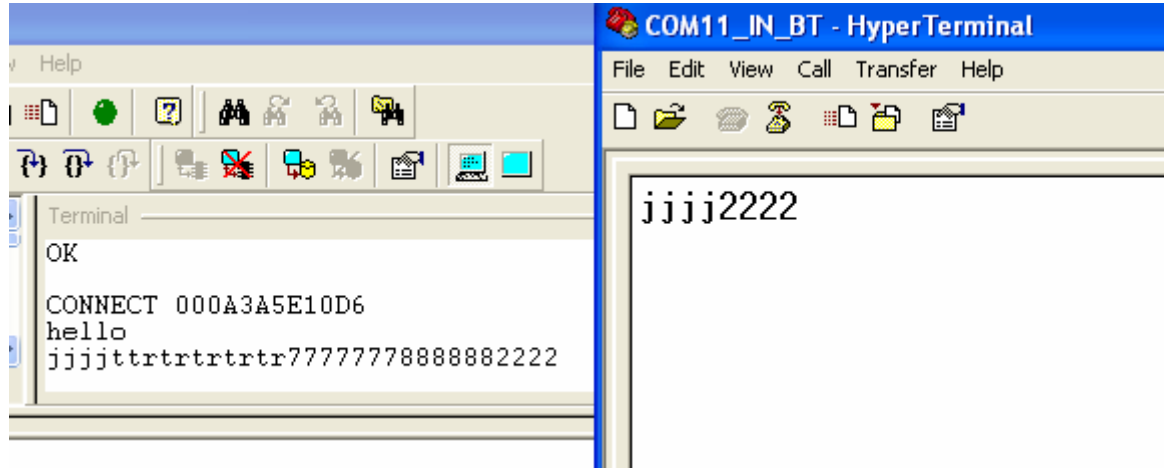
When the connection is established Micro-IDE terminal will show

CONNECT 000A3A5E10D6

It means the connection is established. D1 LED will get OFF.

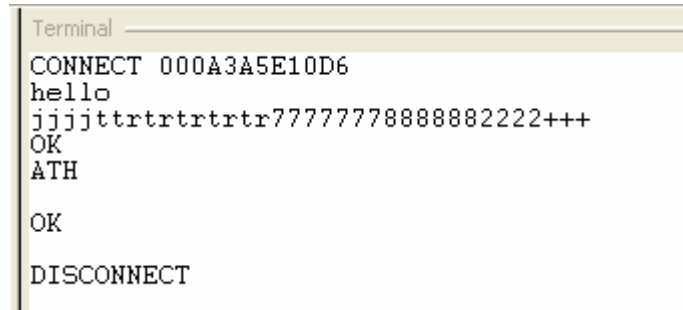
6.10. Try to type any messages on Micro-IDE terminal. They will appear on HyperTerminal window.

Try to type any messages on Hyper Terminal window. They will appear on Micro-IDE terminal.



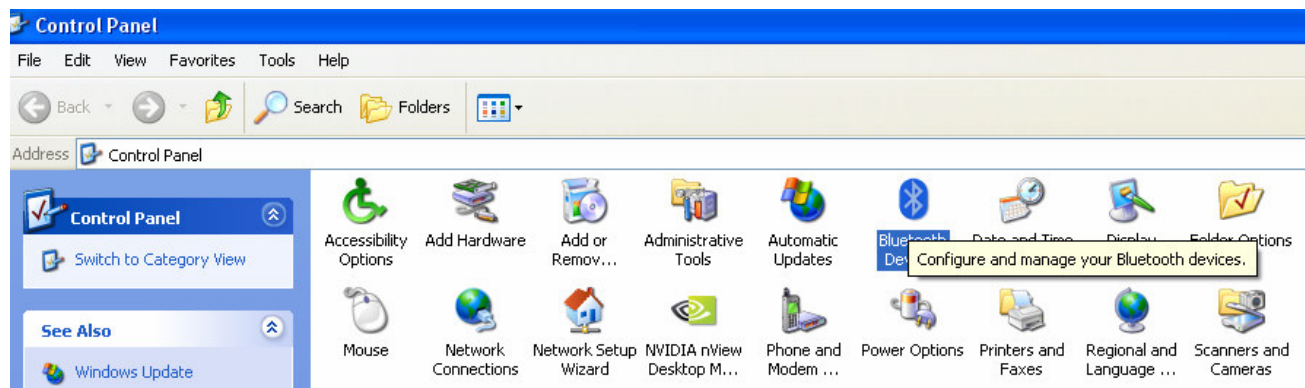
6.11 Type +++ on Micro-IDE terminal to change from ONLINE STATUS to STANDBY STATUS.

6.12 Execute ATH command to release the current Bluetooth connection.

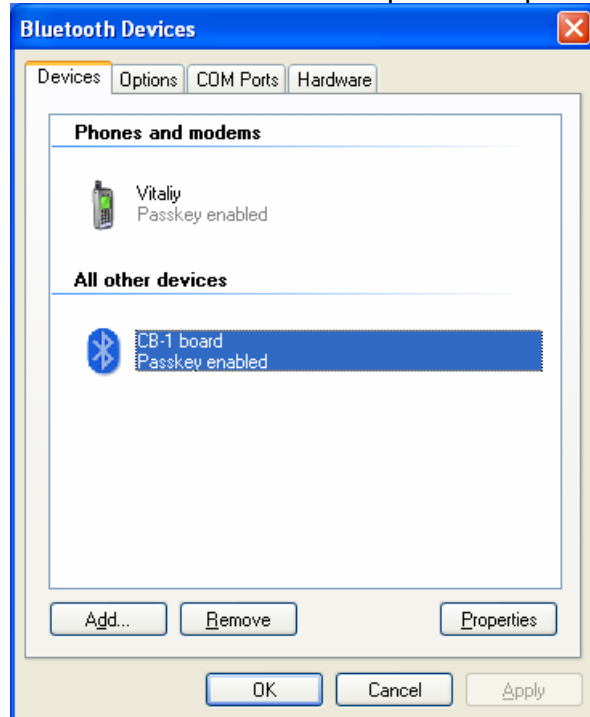


7. Connection from PC to the setup.

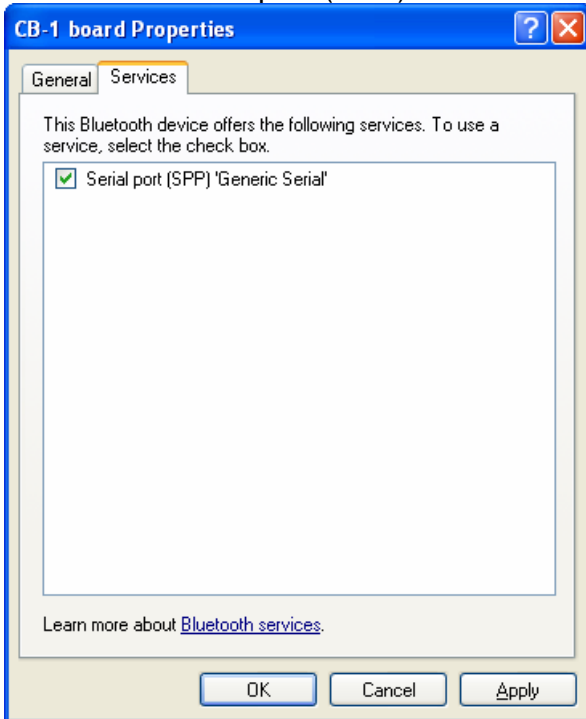
7.1. Click either Bluetooth icon on system tray or Bluetooth devices under Control Panel



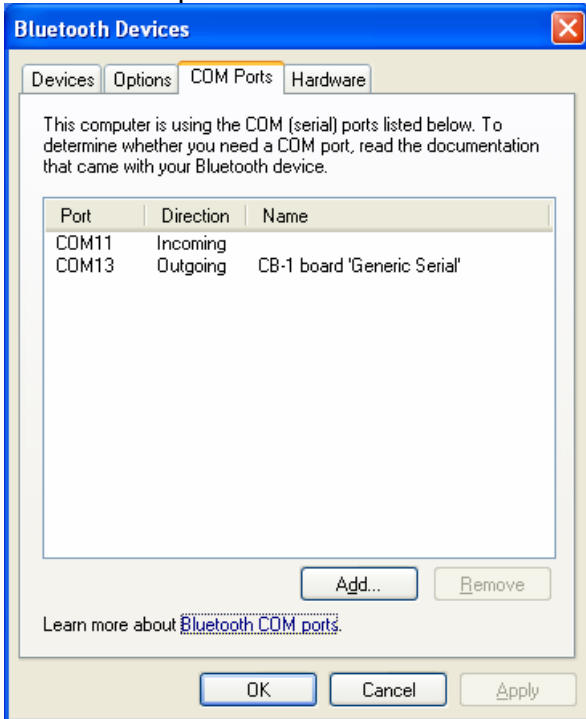
7.2. Click CB-1 board and press Properties



7.3. Check Serial port (SPP) “Generic Serial” box and press Apply

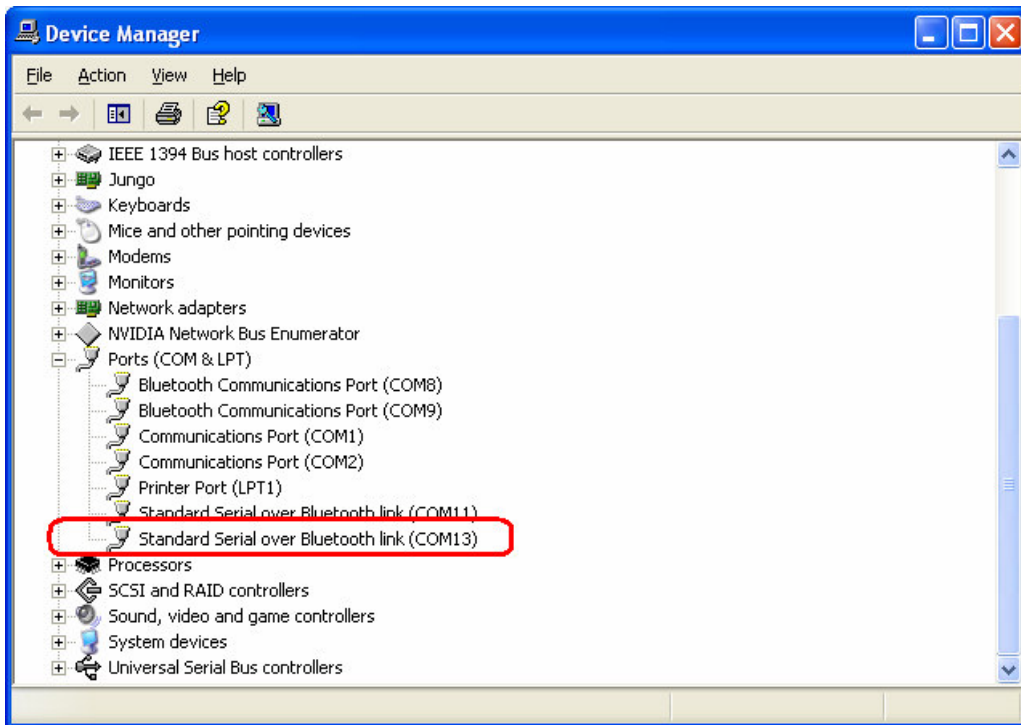


7.4. 2 COM ports should be visible under COM Ports tab



We will use COM13 (outgoing port) to establish connection from PC's side. We use COM11 (incoming port) to establish connection from board's side. In other words, COM11 is a LISTEN port of PC.

7.5 Check if the outgoing COM port is visible under Device Manager window



7.6 The current mode of the CB-1 board should be changed to MODE 3

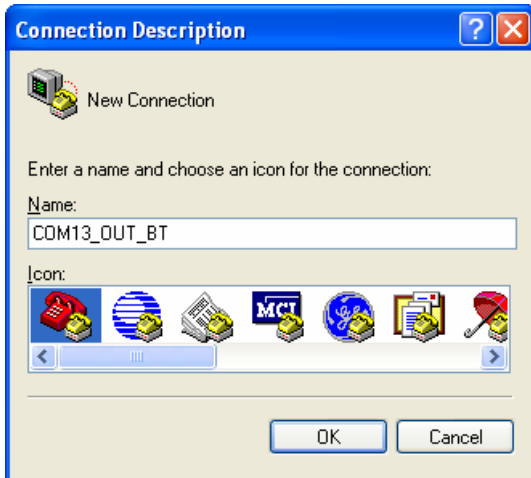
```
Terminal
BIPOM MINI-MAX/ARM-C
CB-1 BLUETOOTH PROMI-ESD
Detecting module...OK
BaudRate is 9600
Please send AT commands
->AT

OK
AT+BTMODE,3

OK
ATZ

OK
```

7.7 Run HyperTerminal under Start->Accessories->Communications->HyperTerminal and create new connection



7.8 The connection should be established automatically

```
Terminal
BIPOM MINI-MAX/ARM-C
CB-1 BLUETOOTH PROMI-ESD
Detecting module...OK
BaudRate is 9600
Please send AT commands
->AT

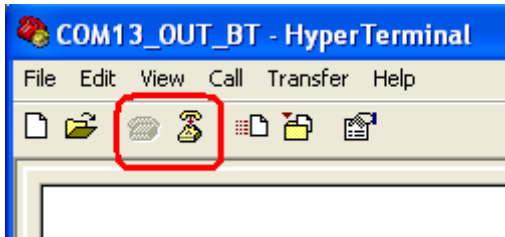
OK
AT+BTMODE,3

OK
ATZ

OK

CONNECT 000A3A5E10D6
```

D1 LED will get OFF.



7.9 Any message typed on HyperTerminal window would appear on Micro-IDE terminal.

```
Terminal  
BIPOM MINI-MAX/ARM-C  
CB-1 BLUETOOTH PROMI-ESD  
Detecting module...OK  
BaudRate is 9600  
Please send AT commands  
->AT  
  
OK  
AT+BTMODE,3  
  
OK  
ATZ  
  
OK  
CONNECT 000A3A5E10D6  
hello from hyper terminal
```

7.10 Press "Disconnect" icon button on HyperTerminal toolbar. DISCONNECT message will appear on Micro-IDE terminal. D1 LED will get ON.

8. PromiWin software.

It is possible to configure PROMI ESD-02 module using a special utility called PromiWIN that provides a comfortable GUI.

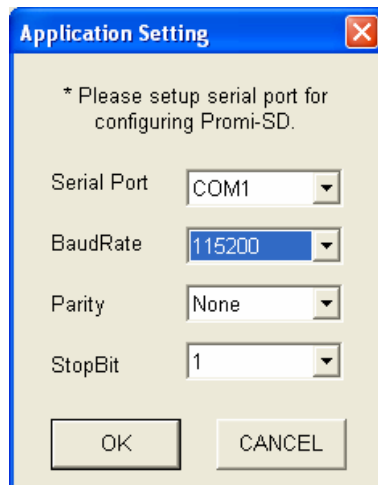
8.1 Download and install http://www.sena.com/download/software/setup_esd_conf-v4.0.exe.

8.2 Remove JP1 jumper from Mini-Max/ARM-C board.

8.3 Power the setup.

8.4 Run Start->initium->Promi-ESD->PromiWin4.0 utility.


8.5 Change baudrate to 115200



8.6 If the hardware is present the dialog box will appear showing INFO about CB-1 board

Serial port was open: COM 1, 115200, No Parity, One Stopbit

PromiWIN



Device Name	CB-1 board
Device Hardware Address	000B53132B46
Current Mode	MODE3
Current Status	Standby
Security	
Security	Don't use
Encryption	Don't use
Uart Setting	
Baud Rate	: 115200
StopBit	: One Stopbit
Parity	: No Parity
H/W Flow control	: Use

Refresh

8.7 All settings can be changed under Device Setting

Serial port was open: COM 1, 115200, No Parity, One Stopbit

PromiWIN

Information

Device Setting

Connection(out)

Connection(in)

Hard Reset Return Promi-SD to factory default setting.

Operation Mode

- MODE0 (Standby status for Bluetooth connection)
- MODE1 (This Promi-SD shall connect to the last connected device only)
- MODE2 (This Promi-SD shall be connected from the last connected device only)
- MODE3 (Allow any Bluetooth devices discover/connect to this Promi-SD)

* You must be in Pending status in MODE3 to be discoverable/connectable.
To be in Pending status, please click MODE3 and press "Apply" button.

Uart

Baud Rate: 115200

Parity: None

StopBit: 1

H/W Flow Control

Device Name: CB-1 board

Security Option

Authentication Encryption

AT Command

ON OFF

Password: []

Apply

PromiWIN

Configuration has been applied

OK

Important note. If baudrate of CB-1 board is changed it is necessary to recycle power line to the setup. Baudrate of PromiWin is always fixed (115200). It can't be changed. To avoid any problems it is recommended to set baudrate to 115200.

Extra information on PROMI ESD module can be obtained from <http://www.sena.com/>

PROMI ESD User Manual: http://www.sena.com/download/manual/manual_promi_esd-v2.0.0.pdf

PROMI ESD Data Sheet: http://www.sena.com/download/datasheet/ds_promi_esd.pdf