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2. INTRODUCTION

This document should provide the minimum knowledge needed to establish a simple connection between two PAN1321ETU USB Evaluation Boards (EVB) using Infineon *eBMU_SPP_Toolbox* software. For this limited information is granted. To learn about all aspects of the software please refer to the related documents listed below.

2.1 RELATED DOCUMENTS

For further information on Infineon *eBMU_SPP_Toolbox* software and it's implemented AT command set please refer to:

- PAN13x1_ReleaseNote_SPP_AT_SW08_V1.8_RN_Rev1.0_DRAFT
- PAN13x1_ReleaseNote_SPP_AT_SW21_V2.1_RN_Rev1.0_DRAFT -iPhone version
- PAN13x1_SPP_AT_UserManual_SoftwareDescription_Rev5.0 DRAFT
- PAN1321_AN_DesignGuide_Rev2 1
- User's_Manual_PAN1311_V20.xx_Rev1.1
- User's Manual PAN1321 V20.xx Rev3.1

4. FUNCTIONAL OVERVIEW

The figure below shows an overview of the Evaluation Board. If there is the need to connect your μ Controller to the EVB please de-solder R1, R2, R3, R4.

For more details please refer also to the schematic in chapter Schematic.



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5. CONNECTION SETUP				
This chapter describes how to use the <i>eBMI</i>	J_SPP_Toolbox so	ftware in order to	send simple	е
data packages from one EVB to the other.				
5.1 SOFTWARE START AND NAVIGATI	ON			
Browse to the folder where the eBMU_SPP	Toolbox.exe file is	located and star	t it. The use	er
interface (figure 2) is shown.	-			
8 eBMU SPP Toolbox - 13:43:42				
Settings Commands Scripts Testing GPIO	Status:			
Port 1 ▼ Flow Log window buffer size: 50000 ▼	Port: 4 💌 🔽 Flow Log v	vindow buffer size: 50000 💌		
Speed 11520C Default parameters for Device A	Speed: 115200 - Default parameters for Device B			
BD Address 0x 0003199E1111	BD Address 0x 0003199E2222			
Local Name: eBMU device A Local Service: 1101	Local Name: eBMU device B Local Service: 1101			
Service Name: Serial port	Service Name: Serial port Class of Device 0x 000000			
Class of Device 0x 000000			Load / Reload	
PIN (ASCII): 11111111111111 Length (04-16): 16	file.log		Save	
Open 1 Open 2 Clear Clear	ooth Clear Show Devia	ce List Tools Notepad	About Exit	
COM Closed		COM Closed		
Figure 4 : Toolbo	x start up screen			
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5.2 PORT CONFIGURATION

Please note that the eBMU Toolbox can handle only COM port numbers below 10. You can configure in the System Hardware settings in your operating system. The USB driver can be found in the installation folder.

On the *settings* tab the communication via COM port is handled. It is possible to set a number of default parameters for both EVBs and to save/load all the changes made to this page (saving the settings will also make the program remember the selected port numbers). Please select the right port numbers for both EVBs (found at Windows OS: control panel \rightarrow system \rightarrow hardware \rightarrow device manager \rightarrow Ports (COM & LPT)) and click the buttons *open/close 1* & *open/close 2*. A status message should appear below the text fields (figure 3). Leave the rest unchanged for now.



Figure 5 : COM port setup

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5.3 FIRMWARE HANDLING

At the *testing* tab firmware can be downloaded (*Download image*) to the EVB and a number of changes can be made to it (*Change BD-data*) like assigning a unique BT address (e.g. 0003199E8B**73**) and oscillator trim value. Make sure that the *Production mode* is enabled before any of these buttons on this tab are used. To do this mark *On* and confirm with a click on *Production mode*. The text field should inform you about of success of this procedure. Be advised to do a hardware reset (push button on EVB) after all changes were made.

Please note:

The BD_Address and OSC_Trim value have to be read out by "Read BD Address" command before downloading. They have to be programmed by "Change BD-data" command after writing the new image.



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5.4 COMMAND TAB NAVIGATION		
At the <i>Commands</i> tab are several commands listed for easy clic coding identifying commands by their intended usage:	k-and-use. Note the colour	
Yellow: Settings and informational commands.Pink: Security related commands.Green: Connection related.		

- Red: Disconnection commands.
- Blue: Data transfer
- Light blue: Accept connection
- White: Sniff (during connection)

	🕴 eBMU SPP Toolbox - 10:55:34 📃 🗖 🔀			
Settings Commands Scripts Testing GPIO Status:				
Device A		Device B		
Make Discoverable Device Discovery Start Conr	nection Request	Make Discoverable	Device Discovery Start	Connection Request
	onnect Request	Register Local Service	Service Discovery Start	Disconnect Request
Auto Accept Connection Requests	Send Data	Auto Accept Connection Requests		Send Data
Set Local Device Friendly Sniff Request Accord	ept Connection Request	Set Local Device Friendly Name	Sniff Request	Accept Connection Reguest
	am Connection	Read BD Address		Stream Connection
Read Revision Information	Request Connection Cancel	Read Revision Information		Request Stream Connection Cancel
Earth County Dis Code Dark	nd Stream Data	Enable Security	Pin Code Reply	Send Stream Data
Remove Trusted Device		Remove Trusted Device		Send Stream Data
Reset	stom Command	Reset		Custom Command
Close 1 Close 2	Clear Clear bo	th Clear Sh	ow Device List Tools	Notepad About Exit
COM: 1 @ 115200 Flov	COM: 1 @ 115200 Flow			115200 Flow

Figure 7 : Command tab and used commands

For simple data transfer find the needed commands marked in figure 5. The Custom Command button can be used to issue any command of the command set (refer to *PMB8753-2_SPP_AT_specification_R1.pdf*).

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5.5 CREATING A CONNECTION		

To send data from one EVB to the other one of them must be prepared for connection, while the other will request a connection. Follow these steps:

- 1. Click on Make Discoverable on Device A. Choose option 3: Inquiry Page Scan enabled. The text field should state the issued command sent (\rightarrow arrow) and the OK response (\leftarrow arrow). Now device A can be found by other devices by both available scan methods.
- 2. Click on Register Local Service. There are some options to change identification of the new service but the default values are ok. Simply choose Send. This service now can be found by other devices of the network.
- 3. Click the Auto Accept Connection Requests command and choose option 1. EVB A will auto accept connection requests from now on. Device A is now ready for connection!
- 4. Get the address of EVB A with the help of *Read BD Address*. In the text field you will find the desired information (e.g. "[...] <-- +RRBDRES=0003199E8B73, [...]"). With this Device A can be addressed when...
- 5. ...issuing Connection Request from Device B. Type or copy the BD address of Device A into the BD Address 0x text field. Name the service channel under which the service of Device A was registered in step 2. If no changes were in step 2 service channel 01 should do. Click send. After a short while both Devices should state connected.
- 6. Done! Now data strings can be sent from one EVB to the other with the Send Data command. Data send and received will be displayed in the text fields. Another click on Send Data will close its dialog box.

Your text fields should look like Figure 6 or alike after step 1 to 5 were made. If problems or errors are encountered feel free to hardware reset (EVB push button) both boards and start over with step 1.

Close 1 Close 2		lear Clear b	oth Clear	Show E	Device List Tools	Notepad	About	Exit
10:02:22:144 < OK 10:02:23:661> AT+, 10:02:23:677 <- OK 10:02:25:225> AT+, 10:02:25:225 < OK 10:02:28:525 < OK 10:02:28:525 < HRR 10:02:35:453 < +RC	JDIS=3 -[Make Discoverable] JRLS=1101,11,Serial port,01,000000 -[Register Local Si JAAC=1 -[Auto Accept Connection requests] JRBD -[Read Bluetooth Device address] BDRES=000319968873,038A -{BD-address and Osc_Tri OI=000319968872 -{Connection indication] CRCNF=256,0 -{Connected, MTU: 256}	ervice]	10:02:33:999	< ОК	03199E8B73,01 -[Crea		n Request]	
	COM: 1 @ 115200 Flow COM: 4 @ 115200 Flow							
	Figure 8 : text fiel	d outp	out from	n step 1 to	D 6			
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7. DOCUMENT INFORMATION

Revision Version	Date Datum	Modification / Remarks Änderungen / Bemerkungen
1.0	18.04.2011	Initial version
1.1	15.09.2011	Updated documentation information in chapter 2.1

Table 3 : Document version

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