

Type1LD Evaluation Board AT Command Quick Start Guide

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Murata Manufacturing Co., Ltd.



Revision History

Revision Number	Release Date	Comments
Revision A	2020/06/10	Initial
Revision B	2020/06/30	Added description of UART usage
		3.1 Purpose and Scope
Revision C	2020/08/20	The procedure was changed to one that does not use UART
		conversion boards.
		1. 5 Prerequisites
		In this guide, it is assumed that you have applied the patch file
		provided by Murata Manufacturing to the WICED SDK. If it has
		not been applied, check the Type1LD Evaluation Board Quick
		Start Guide and apply the patch file.
		Building a Demo Application
		Adding procedures for high-speed communication
		8 To perform high rate communication with AT
		command
Revision D	2020/10/12	Modify Maketarget
		2. 5 Prerequisites
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		Building a Demo Application
Revision E	2021/03/25	Update for .patch platform file



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3. About this Document

3.1. Purpose and Scope

This document provides instructions to evaluate an AT command sample application on the Murata Type1LD EVB. Although Type1LD is supported by WICED-SDK, some modifications will be required when using our EVB. We provide the modification as a "platform file" and AT command sample application source code.



3.2. Document Conventions

Platform file – the source code to configure each platform.

4. Evaluation Board

The Murata Type1LD Evaluation Board supports both Ethernet and USB interfaces. To allow proper operation with WICED Studio, please verify that the mini-switch "BOOTO" is set with the correct pin settings

✓ BOOT0 : set to OFF





5. Prerequisites

In this guide, it is assumed that you have applied the patch file provided by Murata Manufacturing to the WICED SDK. If it has not been applied, check the Type1LD Evaluation Board Quick Start Guide and apply the patch file.

6. Building a Demo Application

To Build a Demo Application, the following steps must be performed:

A) Copy the AT command sample application files provided by Murata to your WICED directory.

Note: WICED directory is at "C:\Users\<user name>\Documents\WICED-Studio-<VERSION>" with default installation.



B) Change the source code.

To run the sample application, edit "43xxx_Wi-Fi¥platforms¥MurataType1LD¥platform.h".

139	/*·UART·port·used·for·standard·I/O·*/	Change to
140	<pre>#define STDIO_UART (WICED_UART_1)</pre>	"WICED HART 9"
		$WIUDDUANI_2$.

To run the sample application, edit "43xxx_Wi-Fi¥apps¥test¥at_cmd¥os_wrapper_wiced.c"

14	#define UART_BAUDRATE_3M_ENABLE	(1)	Change to "0".

- C) Connect the Evaluation board to your PC via the mini USB cable. Type1LD should be detected as "WICED USB Serial Port (COMXX)". ("XX" is the serial port number.) If Type1LD cannot be detected, you may manually install the driver from <WICED-Studio>\Drivers\Windows\
- D) Start the WICED-SDK.

Start the WICED Studio by selecting *START > ALL Programs > Cypress > WICED-Studio*. Select target "43xxx_Wi-Fi" or "WICED Filters off".



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Makehle README.bd version.bt WiFiSecurityExploit wlan-firmware-vers Project Explorer Image: Imag

- E) Build and download the application.
 - a) Click "New Make Target" button.

📀 C/C++ - C:¥Users¥mm08561¥D	ocuments¥WICED-Studio-6.1.0¥README.txt - Eclipse	
<u>File Edit Source Refactor Nav</u>	vigate Search Project Run WICED Platform Window Help	
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Project Explorer 🛛 🗖 🗖	■ README.txt X CY8CKIT_062.mk README.txt 12 □	Make Target ☆
A 3xxx_WI-F A 3XXX_WI	2 Cypress WICED Studio Software Development Kit - README 4 4 SWICED Studio provides systems and APIs needed to build, desi 6 applications for Wi-Fi, Bluetooth Classic (BR/EDR), Bluetoot 7 and ZigBee devices. 9 WICED Studio platforms include support for - 10 - 20706-22, 20735-B0, and 2270-281 based Bluetooth platforms 11 Support for various Cypress Wi-Fi & combo chips 12 - 43908 (43364, 43464) Wi-Fi Sol 13 - 43908 (43364) 43461 bui-Fi Sol 14 - 43438 (43364) 43461 bui-Fi Sol 15 - 43912 Wi-Fi + Bluetooth combo Sol 16 - 43912 Wi-Fi + Bluetooth combo Sol 17 - 20739-B1 based BlueZigBee platforms. 18 19 Bluetooth Features: 20 - Bluetooth stack included the ROM. 21 - BI stack and profile level APIs for embedded BT applicatio 22 - VICED HCI protocol to simplify host/NCU application develo 23 - APIs and drivers to access on board peripherals like SPI, 24 ADC, PMM, Keyscan and IR HW blocks. 25 - Bluetooth protocols include GAP, GATT, SMP, RFCOMM, SDP, 26 AVDTP, AVTCP and OBEX. 17 - With Combo Sol 27 - 20739- Search Debug 28 Problems Search Debug 29 Console 20 Problems Search Debug 20 Cot Build Console [43xoc_WI-F]	 ⁽²⁾ 43xxx, Wi-Fi ⁽²⁾ clean ⁽²⁾ clean ⁽²⁾ clean, appliance-BCM943362WCD4 download run ⁽²⁾ demo.temp_control-BCM943362WCD4 download run ⁽²⁾ snip.ad_filesystem-CYW943907AEVAL1F download run ⁽²⁾ snip.bluetooth.ble_proximity_reporter-MurataType1LD NUE2 ⁽²⁾ snip.scan-BCM943362WCD4 download ⁽²⁾ snip.scan-BCM943362WCD4-download ⁽²⁾ snip.scan-BCM943362WCD4 download ⁽²⁾ snip.scan-BCM943362WCD4-download ⁽²⁾ snip.scan-BCM943362WCD4-download ⁽²⁾ snip.scan-BCM943362WCD4-download ⁽²⁾ snip.scan-BCM943362WCD4-FreeRTOS-LWIP-SDIO dow ⁽²⁾ snip.scan-BCM943362WCD4-FreeRTOS-LWIP-SDIO dow ⁽²⁾ snip.scan-BCM943362WCD4-FreedX-NetX-SPI download ⁽²⁾ snip.scan-BCM943362WCD4-ThreadX-NetX-SPI downloa ⁽²⁾ snip.scan-BCM943362WCD4 download run ⁽²⁾ test.die_temp-MuratType1LD download_apps downloa ⁽²⁾ test.die_temp-MuratType1LD download_apps downloa ⁽²⁾ test.mfg_test-MuratType1LD download_apps downloa
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"Create Make Target" window will appear.



b) Input the following text to the "Target name" field.

test.at_cmd-MurataType1LD download download_apps run

📀 Modify Mal	ke Target	×
Target name:	test.at_cmd-MurataType1LD download download_apps run]
Make Target		
Same as th	e target name	
Make target:	test.at_cmd-MurataType1LD download download_apps run	
Build Comma	nd r settings	
Build comma	no: \${ProjDirPath}≠make.exe	
Build Settings	5	
Stop on fir	st build error	
Run all pro	ject builders	
	OK Cancel	

c) Select "OK" and confirm that the new target have been added in the "Make Target" area.

🖲 Make Target 🔀	I - 🚽 🖉 - 🕁 🔞 🛞 🐨							
🗸 😂 43xxx_Wi-Fi								
clean								
demo.appliance-CYW943907AEVAL1F download run								
emo.temp_control-CYW943907AEVAL1F download run								
snip.apple_homekit.lightbulb_service-CYW943907AEVAL1F USE_MFI=1 download run								
snip.ota2	_extract-MurataType1GC							
snip.ota2	_extract-MurataType1LD							
snip.ota2	_extract-MurataType1PS							
snip.scan	-CYW943907AEVAL1F							
snip.scan	-CYW943907AEVAL1F-debug download							
snip.scan	-CYW943907AEVAL1F download							
snip.scan	-CYW943907AEVAL1F download run							
snip.scan	-CYW943907AEVAL1F-FreeRTOS-LwIP-SDIO download run							
snip.scan	-CYW943907AEVAL1F-SPI download run							
snip.scan	-CYW943907AEVAL1F-ThreadX-NetX_Duo-SDIO download run							
snip.scan	-CYW943907AEVAL1F-ThreadX-NetX-SPI download run							
snip.scan	-MurataType1LD download run							
test.at_cn	nd-MurataType1GC-debug ota2_image download							
test.at_cn	nd-MurataType1GC ota2_image download run							
(a) test.at.cn	ad-MurataType1I D-debug download							
) test.at_cn	nd-MurataType1LD download download_apps run							
(e) test.at_cn	nd-Murata lype1PS ota2_image download run							
(e) test.conse	ple-CYW943907AEVAL1F download run							

Double-click on the Make Target "test.at_cmd-MurataType1LD download download_apps run" to build the application.

Note: It will take some minutes for first building.



🕐 C/C++ - Eclipse File Edit Source Refactor Navigate Search Project Run	CvPE WICED Platform Window Help			-	٥	×
		e • 63	• C • C • k • 0 • 9		(+) (+) (+) (+) (+) (+) (+) (+) (+) (+)	▼ 🐟 ▼ Debug
✓	<pre>287 288 289 289 290 int os_wrapper_recv_char(char *ch) 291 { 292 wiced_result_t result; 293 uint8_t received_character; 294 uint8_t expected_transfer_size; 295 while (1) 297 { 298 expected_transfer_size = 1; 299 #if defined(ATCMD_USE_USB) 299 #if defined(ATCMD_USE_USB) 200 result = wiced_usb_device_cdc_acm_receive_t 301 #else 302 result = wiced_ust_receive_bytes(cons.uar 303 #endif /* ATCMD_USE_USB */ 304 if (result == WICED_SUCCESS) 306 { 307 // printf("%c\n", received_character); 308 *ch = received_character; 309 break; 301 else 302 Console [4] Problems # Search \$> Debug 303 @ 304 } 305 @ CDT Build Console [43xxx_Wi-Fi] </pre>	∧ ytes t, 8 ∨ · · · ·	 Baxov, Wi-Fi Cean Gema, appliance-CVW8 Gema, appliance-CVW8 Gema, appliance-CVW8 Gema, appliance-CVW8 Gema, appliance-CVW8 Gema, appliance-CVW8 Snipota2, extract-Mura Snipota2, extract-Mura Snipota2, extract-Mura Sniposan-CVW48907A Sniposan-VW48907A Sniposan-VW4890	43907AEVAL1F download run W943907AEVAL1F download run thulu service-CYW943907AEVAL1F USE_ taType1CC taType1D taType1PS EVAL1F download EVAL1F download EVAL1F download run EVAL1F forwnload run EVAL1F5PI download run e1GC-debug ota2_image download e1ED download download gpps rul e1ED download download run iFS ota2_image download run	MFI=1 down	>

- F) Building progress will be displayed on the window of the "Studio Console".
- G) "Build complete" indicates that the building and downloading of the application has been successful.

🖳 Console 🕄 🧔 Tasks 🦹 Problems 🜔 Executables 🛷 Search 🛛 🕂 😭 🌆 📰 🖬 📰 🖃 🚽 🖬 🖛 🖳 CDT Build Console [43xxx_Wi-Fi] \land Resetting target Target running Build complete Making .gdbinit 09:19:09 Build Finished (took 6m:48s.724ms) <



7. Running AT command Application

To verify the application which is downloaded in section 3, you need to launch a terminal software such as Tera Term. Please select [Setup] > [Serial Port...] in the menu bar to setup serial port. Please use the following settings for the COM port connection.

Tera Term: Serial port setup						
<u>P</u> ort:	COM18	\sim	ОК			
Sp <u>e</u> ed:	115200	~				
<u>D</u> ata:	8 bit	\sim	Cancel			
P <u>a</u> rity:	none	\sim				
<u>S</u> top bits:	1 bit	\sim	<u>H</u> elp			
Elow control:	none	\sim				
Transmit delay 0 msec/ <u>c</u> har 0 msec/ <u>l</u> ine						

COM port settings for UART1

Tera Term: Serial port	setup		×
Port:	COM20	\sim	ОК
Speed:	115200	\sim	
Data:	8 bit	\sim	Cancel
Parity:	none	\sim	
Stop bits:	1 bit	~	Help
Flow control:	none	\sim	
Transmit delay	c/char 0	m	sec/line

COM port settings for UART6



The following texts will appear on Tera Term (UART6).



The following texts will appear on Tera Term (**UART1**) when you type an AT command **"AT+WSCAN"** and line feed code (**CR+LF**) on the Tera Term window.

	🔟 CON	114 - Tera	Term VT			_	\times
F	ile Edi	t Setup	Control	Window	Help		
	K WSCAN: WSCAN: WSCAN: WSCAN	FINISH		, OFF , 44 , OFF , B0 10:00: 43	:C3:46:4E:E4:4A,2,20,WPA2_AES_PSK, :C7:45:33:10:60,6,20,Open, :44:05:EC,6,20,WPA2_AES_PSK,JP ,50:04:B8:A6:B5:A6,7,20,WPA2_AES_TKIP_PS	ζ,	



8. To perform high rate communication with AT command

For high-speed communication such as throughput measurement, it is necessary to connect the UART directly to the pin of the 1LD so that we can use 3Mbps baud rate and hardware flow control. After you finished the procedure in Section 3, perform the following steps to enable 3Mbps baud rate and hardware flow control. You can use any host processors which have UART interface but we used Raspberry Pi 3B as a host to check if AT commands works correctly.

A) Change the source code.

Edit "43xxx_Wi-Fi¥platforms¥MurataType1LD¥platform.h". #define UART_BAUDRATE_3M_ENABLE (0) Change to "1". B) UART connection between host and 1LD Connect the PIN as follows. PIN (1LD) PIN (Raspberry Pi 3) 11 361211 1310 148 279 0.0.01

C) Performing Rebuilds and Download

(END)