

BT SDK 2.5 Release Notes

Overview

This release is an update to the BT SDK 2.4. The BT SDK 2.5 is targeted for the CYW20706, CYW20719B2, CYW20721B2, CYW20735B1, CYW20819, CYW20820, CYW89820 and the CYW43012 Wi-Fi/BT Combo (for embedded BT development only). ModusToolbox™ with the Bluetooth SDK software library provides a complete development environment to allow you to quickly create Bluetooth enabled IoT solutions like smart watches, medical devices, or home automation platforms. This document describes the features and known limitations for the BT SDK 2.5.

Contents

Overview	1
Contents.....	1
What's Changed	1
What's Included	2
Bluetooth SDK.....	2
Design Impact	2
Updating from BT SDK 2.4	2
Supported Boards	3
Known Issue Fixes.....	3
Known Issues/Limitations.....	4
Documentation	4
Platform	4
Bluetooth SDK.....	5
Open Source.....	7
Further Reading	7

What's Changed

This section provides a high-level overview about what changed from BT SDK 2.4 to BT SDK 2.5.

- Added headset code example for the CYW43012
- Added MAP client code example for the CYW43012
- Added Home kit support for the CYW20819/CYW20820
- Fixed BLE Security Vulnerability CVE-2019-13916 for the CYW20706A2, CYW20819A1, CYW20820A1, CYW20719B2, CYW20721B2
- Added support for the CYBT-413055-02 module and the CYBT-413055-EVAL platform

- Added support for the CYBT-483056-02 module and the CYBT-483056-EVAL platform

What's Included

Bluetooth SDK

The Bluetooth SDK is targeted for the CYW20706, CYW20719B2, CYW20721B2, CYW20735B1, CYW20819A1, CYW20820A1, CYW89820, and CYW43012C0 with ModusToolbox 2.1. This SDK includes the following:

- Bluetooth firmware
- Platform and board support packages
- Utilities including BTSpy trace, Manufacturing Bluetooth test tool, Client Control, and Mesh Client control
- Peer apps for OTA and Mesh
- A rich set of WICED connectivity APIs that allow for simplified programming of BT/BLE connectivity
- Various sample applications that serve as examples of how to utilize the BT/BLE APIs
- More complex code examples that utilize various APIs and middleware to create a more complete solution

Design Impact

Updating from BT SDK 2.4

The BT SDK 2.5 code examples can be acquired from the Cypress GitHub. Note, if a previous version of BT SDK2.x was installed and needs to be preserved, you will need to create a new workspace and wiced_bt sdk project in order to pull in BT SDK 2.5 and avoid overwriting previous versions.

There are a couple of steps that must be done in the initial setup of the BT SDK2.5 with ModusToolbox 2.1:

- In the IDE, click the “New Application” link in the Quick Panel (or, use “File > New > ModusToolbox Application”)
- This will launch the Project Creator. In Project Creator, click on “WICED Bluetooth BSPs”
- Pick your board for BT SDK
- First select “wiced-bt sdk”. This project contains the SDK. It is used by all BT SDK applications. You will need to create this project just once in the working directory. **Note:** Do not change the name of this project. All BT SDK apps use this project name in application makefiles.
 - Select create. This step can take up to 15 minutes but only needs to be done once.
 - Select Close.
- After the wiced_bt sdk project is created, click the “New Application” link to launch the Project Creator. In the Project Creator, select the evaluation board and application that you want to use from the BT SDK.

Supported Boards

This release provides support for the following boards.

Board	MCU	Connectivity
CYW920819EVB-02	CYW20819	CYW20819
CYW920819REF-KB-01	CYW20819	CYW20819
CYBT-213043-MESH	CYW20819	CYW20819
CYBT-213043-EVAL	CYW20819	CYW20819
CYW920820EVB-02	CYW20820	CYW20820
CYW920735Q60EVB-01	CYW20735	CYW20735
CYW920721B2EVK-02	CYW20721B2	CYW20721B2
CYW920721B2EVK-03	CYW20721B2	CYW20721B2
CYW920719B2Q40EVB-01	CYW20719B2	CYW20719B2
CYBT-423054-EVAL	CYBT-423054-02	CYW20719B2
CYBT-413055-EVAL	CYBT-413055-02	CYW20719B2
CYBT-483056-EVAL	CYBT-483056-02	CYW20719B2
CYW920706WCDEVAL	CYW20706	CYW20706
CYBT-353027-EVAL	CYBT-353027-02	CYW20706
CYBT-343026-EVAL	CYBT-343026-02	CYW20706
CYW989820EVB-01	CYW89820	CYW89820
CYW9M2BASE-43012BT	CYW43012	CYW43012

Known Issue Fixes

This section lists the known issues from the BT SDK2.4 release that were fixed in this release.

Platform/BT Firmware/Application	Fix
[CYW920706WCDEVAL] Ble mesh conformance	Updated firmware and tested with latest version of PTS to solve issue where the Command received failed (timeout) in MESH/NODE/RLY/BV-02-C
Linker	Updated to fix issue that the linker didn't complain about duplicate objects
CYW9M2BASE-43012BT] watch	Fixed issue where the DUT intermittently fails to connect to Le server with synchronization timeout error.
[CYW9M2BASE-43012BT] watch	Fixed reconnection issue after second time pairing with the same device.
[CYW920819EVB-02] Directed advertisement	Updated firmware to fix issue that directed advertisement wasn't working after resetting the device.
[CYW920820EVB-02] spp_lib	Fixed issues seen when initiating connection from device using the wiced_bt_spp_connect api.
[CYW920721B2EVK-02] ANC	Updated ANC to advertise for 90 seconds instead of continuously.
[CYW920719B2Q40EVB-01] Watch	Fixed issue that the A2DP connection drops after it is left idle after 10 seconds when connected to a Bose Quiet Comfort headset.

Platform/BT Firmware/Application	Fix
[CYW20706A2, CYW20819A1, CYW20820A2, CYW20719B2, CYW20721B2]	Updated to fix BLE Security Vulnerability CVE-2019-13916

Known Issues/Limitations

This section lists the known issues/limitations of this release:

Documentation

Problem	Workaround
Various documents included with the release may contain incomplete information or may not contain up to date screen captures or information.	New versions of documents, including these release notes, may be available online at: www.cypress.com/modustoolbox

Platform

Limitation	Workaround
ModusToolbox 2.0 supports Arm Gcc, Arm compiler v6 and IAR toolchain. The BT SDK only supports Arm GCC.	None.
No functional testing was completed on Mac and Linux for this release due to limited access to Cypress offices dictated by COVID-19 restrictions. CLI download test was done on Linux and Mac.	None. Increased test coverage is planned for future releases.
Limited testing for Visual Studio Code IDE on Windows for this release due to COVID-19 restrictions and limited access to Cypress offices. No functional testing for Visual Studio Code IDE was performed on Linux or MAC.	None. Increased test coverage is planned for future releases.
CYW920820EVB-02 has limited availability.	Contact Cypress sales to request access.
CYW920721B2EVK-02 and CYW920721B2EVK-03 have limited availability.	Contact Cypress sales to request access.
CYW920719B2Q40EVB-01 has limited availability.	Contact Cypress sales to request access.
CYW989820EVB-01 has limited availability.	Contact Cypress sales to request access.
CYW9M2BASE-43012BT has limited availability.	Contact Cypress sales to request access.
Headset code example for CYW9M2BASE-43012BT was only tested by developers due to limited access to Cypress offices dictated by COVID-19 restrictions.	None. Increased test coverage is planned for future releases.
iAP2 code examples were only tested by developers due to limited access to Cypress offices dictated by COVID-19 restrictions.	None. Increased test coverage is planned for future releases.
iAP2 code example are not included by default in the BT SDK 2.5.	Get Mfi license and contact Cypress sales to request access to the additional code example
Limited testing of homekit_lightbulb code example for CYW20819/20820	None. Increased test coverage is planned for future releases.
PEPS code examples for the CYW89820 are not included by default in the BT SDK2.5	Contact Cypress sales to request access to the additional code examples available for the CYW89820.

Bluetooth SDK

Problem	Workaround
[CYW920706WCDEVAL] Ble mesh conformance: Expected value and received value do not match for LC server PTS test cases	This is a PTS issue. A newer version of PTS should fix the issue.
[CYW920719B2Q40EVB-01] Ble mesh conformance: Command receive failed (timeout) in MESH/NODE/RLY/BV-02-C	This is a PTS issue. A newer version of PTS should fix the issue.
[CYW920721B2EVK-01] MAP: There is no provision in client control UI to download e-mails	There are no plans to implement this feature.
[CYW920721B2EVK-01] MAP: Contact number/name is not displayed for Unsaved contacts. This is an UI display issue; the trace shows the operation is working fine.	This issue is targeted to be addressed in a future BT SDK release.
[CYW920721B2EVK-02] Headset_wass: Glitches are heard on PRI and no audio on SEC during audio streaming when OTA upgrade through OTA SPP app is running.	This issue is targeted to be addressed in a future BT SDK release.
[CYW920721B2EVK-02] Headset_wass: Glitch is heard on headset when BLE connection from source2 during audio streaming from source 1	This issue is targeted to be addressed in a future BT SDK release.
[CYW920721B2EVK-02] Headset_wass: No voice prompt is working from the time, after SEC is reset during headset re-connection from PRI	This issue is targeted to be addressed in a future BT SDK release.
[CYW920721B2EVK-02] Headset_wass: Discoverability is going to zero when DUT is disconnected before pairing mode is allowed to zero.	This issue is targeted to be addressed in a future BT SDK release.
[CYW920721B2EVK-02] Headset_wass: Able to start audio streaming from src2 during an incoming active voice call on src1	This issue is targeted to be addressed in a future BT SDK release.
[CYW920721B2EVK-02] Headset Pro: IUT shows error when PTS sent Volume up/down commands in AVRCP/TG/PTT/BV-02-I	This issue is targeted to be addressed in a future BT SDK release.
[CYW920721B2EVK-02] BT Speaker Pro AMA: Need to put DUT in discoverable mode to perform LE reconnection	This issue is targeted to be addressed in a future BT SDK release.
[CYW920721B2EVK-02] BT Speaker Pro AMA: Volume is increasing by two levels when given command 'increase volume' to Alexa at minimum volume level	This issue is targeted to be addressed in a future BT SDK release.
[CYW920721B2EVK-02] BT Speaker Pro AMA: Alexa is not responding when given command to 'play music', after pausing music from third party app, which is started during streaming from Alexa app	This issue is targeted to be addressed in a future BT SDK release.
[CYW920721B2EVK-03] Headset_pro_aac: Held voice call on src2 is not coming to active state after declining incoming voice call on src1	This issue is targeted to be addressed in a future BT SDK release.

Problem	Workaround
[CYW920721B2EVK-03] Headset_wass_aac: Media volume sync is disabled after re-connection from source during audio streaming	This issue is targeted to be addressed in a future BT SDK release.
[CYW920721B2EVK-03] Headset_wass_aac: Glitch is heard on headset when WASS BLE is connected from src2 during audio streaming from src1.	This issue is targeted to be addressed in a future BT SDK release.
[CYW920735Q60EVB-01] Board requires recovery reset before download	Reset recovery can be used to work around. This issue is targeted to be addressed in the next BT SDK release.
[CYW920819EVB-02] Low power: Entering HID-OFF trace messages are not printing	This issue will be addressed in a future BT SDK release.
[CYW920819EVB-02] Watch: Observing current spikes of 200uA on J15 (VDDIO)	This issue is targeted to be resolved in a future BT SDK release.
[CYW920820EVB-02] Spi_master functionality is not working after changing pin configuration through device configurator	Device configurator should only be used for reserving pins and not assigning functionality. This issue will not be fixed.
[CYW920820EVB-02] Spi_slave functionality is not working after changing pin configuration through device configurator	Device configurator should only be used for reserving pins and not assigning functionality. This issue will not be fixed.
[CYW920820EVB-02] Ble_keyboard/ble_mouse/ble_remote: Observing CYW20819 as chip name instead of CYW20820.	This issue will be addressed in a future BT SDK release.
[CYBT-213043-EVAL] MC is receiving bad packets when HCI tracing is enabled due to low baud rate and buffer settings with Linux.	This issue can be worked around by decreasing the logging on the UART for Linux. This issue won't be fixed.
[CYBT-213043-EVAL] Lecoc: Intermittently observed bad packets	This issue is due to Cy Serial bridge software. This issue will not be fixed.
[CYBT-213043-MESH, CYW920820EVB-02] Unable to do OTA upgrade for apps which does not have Proxy feature enabled (dimmer, on_off_switch)	This issue will be addressed in a future BT SDK release.
[CYBT-213043-MESH] BLE MMDL Conformance: Did not receive all of the expected messages (expected message 2 of 2 at address 0xC001).	This is a PTS issue. A newer version of PTS should fix the issue.
When using the ANS application, the UI does not allow generating all possible alerts simultaneously.	This is a current UI limitation; the application can handle generating alerts. The UI can generate individual alerts.
Update any api documentation that uses the bd_addr as input to reflect the endianness required	This documentation issue will be addressed in a future BT SDK release.
Update wiced_bt_dev api documentation to reflect it is intended for BLE only (wiced_bt_dev_add_device_to_address_resoluit on_db api)	This documentation issue will be addressed in a future BT SDK release.

Open Source

Portions of this software package are licensed under free and/or open source licenses such as the GNU General Public License. Such free and/or open source software is subject to the applicable license agreement and not the Cypress license agreement covering this software package. The applicable license agreements are available online:

<http://www.cypress.com/documentation/software-and-drivers/free-and-open-source-software-download-page>

Further Reading

There are several related documents provided with ModusToolbox software. These documents include (but are not limited to):

- ModusToolbox Installation Guide
- Bluetooth API Documentation
- ModusToolbox IDE Quick Start Guide
- ModusToolbox IDE User Guide
- ModusToolbox Configurator Guides (for each Configurator)

Other documentation includes (but is not limited to):

- Device Datasheets
- Application Notes
- Training

Contact your Cypress representative, as needed.

Cypress Semiconductor
198 Champion Ct.
San Jose, CA 95134-1709 USA
www.cypress.com

© Cypress Semiconductor Corporation, 2020. This document is the property of Cypress Semiconductor Corporation and its subsidiaries ("Cypress"). This document, including any software or firmware included or referenced in this document ("Software"), is owned by Cypress under the intellectual property laws and treaties of the United States and other countries worldwide. Cypress reserves all rights under such laws and treaties and does not, except as specifically stated in this paragraph, grant any license under its patents, copyrights, trademarks, or other intellectual property rights. If the Software is not accompanied by a license agreement and you do not otherwise have a written agreement with Cypress governing the use of the Software, then Cypress hereby grants you a personal, non-exclusive, nontransferable license (without the right to sublicense) (1) under its copyright rights in the Software (a) for Software provided in source code form, to modify and reproduce the Software solely for use with Cypress hardware products, only internally within your organization, and (b) to distribute the Software in binary code form externally to end users (either directly or indirectly through resellers and distributors), solely for use on Cypress hardware product units, and (2) under those claims of Cypress's patents that are infringed by the Software (as provided by Cypress, unmodified) to make, use, distribute, and import the Software solely for use with Cypress hardware products. Any other use, reproduction, modification, translation, or compilation of the Software is prohibited.

TO THE EXTENT PERMITTED BY APPLICABLE LAW, CYPRESS MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARD TO THIS DOCUMENT OR ANY SOFTWARE OR ACCOMPANYING HARDWARE, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. No computing device can be absolutely secure. Therefore, despite security measures implemented in Cypress hardware or software products, Cypress shall have no liability arising out of any security breach, such as unauthorized access to or use of a Cypress product. CYPRESS DOES NOT REPRESENT, WARRANT, OR GUARANTEE THAT CYPRESS PRODUCTS, OR SYSTEMS CREATED USING CYPRESS PRODUCTS, WILL BE FREE FROM CORRUPTION, ATTACK, VIRUSES, INTERFERENCE, HACKING, DATA LOSS OR THEFT, OR OTHER SECURITY INTRUSION (collectively, "Security Breach"). Cypress disclaims any liability relating to any Security Breach, and you shall and hereby do release Cypress from any claim, damage, or other liability arising from any Security Breach. In addition, the products described in these materials may contain design defects or errors known as errata which may cause the product to deviate from published specifications. To the extent permitted by applicable law, Cypress reserves the right to make changes to this document without further notice. Cypress does not assume any liability arising out of the application or use of any product or circuit described in this document. Any information provided in this document, including any sample design information or programming code, is provided only for reference purposes. It is the responsibility of the user of this document to properly design, program, and test the functionality and safety of any application made of this information and any resulting product. "High-Risk Device" means any device or system whose failure could cause personal injury, death, or property damage. Examples of High-Risk Devices are weapons, nuclear installations, surgical implants, and other medical devices. "Critical Component" means any component of a High-Risk Device whose failure to perform can be reasonably expected to cause, directly or indirectly, the failure of the High-Risk Device, or to affect its safety or effectiveness. Cypress is not liable, in whole or in part, and you shall and hereby do release Cypress from any claim, damage, or other liability arising from any use of a Cypress product as a Critical Component in a High-Risk Device. You shall indemnify and hold Cypress, its directors, officers, employees, agents, affiliates, distributors, and assigns harmless from and against all claims, costs, damages, and expenses, arising out of any claim, including claims for product liability, personal injury or death, or property damage arising from any use of a Cypress product as a Critical Component in a High-Risk Device. Cypress products are not intended or authorized for use as a Critical Component in any High-Risk Device except to the limited extent that (i) Cypress's published data sheet for the product explicitly states Cypress has qualified the product for use in a specific High-Risk Device, or (ii) Cypress has given you advance written authorization to use the product as a Critical Component in the specific High-Risk Device and you have signed a separate indemnification agreement.

Cypress, the Cypress logo, Spansion, the Spansion logo, and combinations thereof, WICED, PSoC, CapSense, EZ-USB, F-RAM, and Traveo are trademarks or registered trademarks of Cypress in the United States and other countries. For a more complete list of Cypress trademarks, visit cypress.com. Other names and brands may be claimed as property of their respective owners.