BT SDK 2.4 Release Notes

Overview

This release is an update to the BT SDK 2.3. The BT SDK 2.4 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 2.4.

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What's Changed

This section provides a high-level overview about what changed from BT SDK2.3 to BT SDK2.4.

- Added support for ModusToolbox 2.1
- Added support for the CYW43012C0 device and the CYW9M2BASE-43012BT board for BT embedded applications
- Added support for the CYBT-423054-02 module and the CYBT-423054-EVAL platform
- Fixed BLE Security Vulnerability CVE-2019-11516 for the CYW20735B1
- Fixed BLE Security Vulnerability CVE-2019-13916 for the CYW43012C0

- Updated iAP2 code example to support authchip3 for CYW20819, CYW20820, CYW89820, CYW20706, and CYW20719B2
- Updated ble remote code example for CYW20735B1 to add support for Android voice over BLE
- Updated headset_wass code example for CYW20721B2 to support multi-point functionality and optimization of memory usage

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 2.3

The BT SDK 2.4 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_btsdk project in order to pull in BT SDK 2.4 and avoid overwriting previous versions.

There are a couple of steps that must be done in the initial setup of the BT SDK2.4 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-btsdk". 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_btsdk 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	On-chip Bluetooth
CYW920819REF-KB-01	CYW20819	On-chip Bluetooth
CYBT-213043-MESH	CYW20819	On-chip Bluetooth
CYBT-213043-EVAL	CYW20819	On-chip Bluetooth
CYW920820EVB-02	CYW20820	On-chip Bluetooth
CYW920735Q60EVB-01	CYW20735	On-chip Bluetooth
CYW920721B2EVK-01	CYW20721B2	On-chip Bluetooth
CYW920721B2EVK-02	CYW20721B2	On-chip Bluetooth
CYW920721B2EVK-03	CYW20721B2	On-chip Bluetooth
CYW920719B2Q40EVB-01	CYW20719B2	On-chip Bluetooth
CYBT-423054-EVAL	CYW20719B2	On-chip Bluetooth
CYW920706WCDEVAL	CYW20706	On-chip Bluetooth
CYBT-353027-EVAL	CYW20706	On-chip Bluetooth
CYBT-343026-EVAL	CYW20706	On-chip Bluetooth
CYW989820EVB-01	CYW89820	On-chip Bluetooth
CYW9M2BASE-43012BT	CYW43012	On-chip Bluetooth

Known Issue Fixes

This section lists the known issues from the BT SDK2.3 release that were fixed in this release.

Platform/BT Firmware/Application	Fix
[CYW920706WCDEVAL] ANS	Fixed documentation issue that the header comments/readme.txt didn’t match implementation.
BLE Mesh iOS: MeshApp	Build failure with private development ID went away once Xcode added support for iOS13.3
[CYW920721B2EVB-02, CYBT-213043-MESH] BLE mesh iOS	Fixed compile issue that was causing OTA upgrade for second device to be unsuccessful.
[CYW920819REF-KB-01] Dual_mode_keyboard	Updated f/w to fix issue that the DUT wasn’t going into HIDFF mode after a power cycle.
[CYW920819REF-KB-01] Dual_mode_keyboard	Fixed issue that sent keys from the reference keyboard wasn’t being seen by the iPad Pro.

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.
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 2.4.	Get Mfi license and contact Cypress sales to request access to the additional code example
PEPS code examples for the CYW89820 are not included by default in the BT SDK2.4	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.
[CYW920706WCDEVAL] Ble mesh: Not able to move the device in newly created group.	This documentation issue will be addressed in a future BT SDK release.

Problem	Workaround
[CYW920706WCDEVAL] 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.
[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.
[CYW920719B2Q40EVB-01] Watch: A2DP connection drops after it is left idle after 10 seconds when connected to a Bose Quiet Comfort headset.	This issue is targeted to be addressed in the next BT SDK release.
[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] 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-02] ANC: ANC is advertising continuously	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.
[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	This issue is targeted to be addressed in the next BT SDK release.

Problem	Workaround
[CYW920819EVB-02] Directed advertisement not working after resetting the device	This issue is targeted to be addressed in a future 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.
[CYW9M2BASE-43012BT] watch: le reconnection issue after second time pairing with the same device.	This issue will be addressed in a future BT SDK release.
CYW9M2BASE-43012BT] watch: Intermittently the DUT fails to connect to Le server with synchronization timeout error	This issue will be addressed in a future BT SDK release.
[CYW20706A2, CYW20819A1, CYW20820A2, CYW20719B2, CYW20721B2] BLE Security Vulnerability CVE-2019-13916	This issue will be addressed in the BT SDK 2.5 release.
Linker does not complain about duplicate objects	This issue will be addressed in a future BT SDK release.
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.

Open Source

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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.

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