CC256xB BT Service Pack

CC256XB_BT_SP_v1.8

Release Notes

Revision 1.0

August 16, 2019

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1. Service Pack Information

Version	CC256XB_BT_SP_v1.8
Compatibility	CC2564B / CC2560B / CC2564MODN / CC2564MODA
Comments	This service pack is based on internal version TI_P7_16.42

1.1. General Information

The service-pack is required to be run after the CC256xB device power up, in order to initialize the device.

1.2. Included files

This service pack includes the following files:

- Service pack scrips(*.bts & *.h)
- XML library for usage with HCITester, Logger and ScriptPad
- ILI configuration file for Logger tool

1.2.1. Service pack scripts

- **Bluetopia\CC256XB.h**

  This file is derived from the Initscripts-TIInit_6.7.16*.bts files for use with the TI dual-mode Bluetooth stack CC256XMS432BTBLESW and CC256XSTBTBLESW.

  In order to update the service-pack in the existing projects of the releases mentioned above, replace the CC256XB.h in the stack with this file.

- **BluetopiaPM_Linux\TIInit_6.7.16.bts**

  This file is generated by combining the Initscripts-TIInit_6.7.16_bt_spec_4.1.bts and the Initscripts-TIInit_6.7.16_ble_add-on.bts. It is meant to be used with the TI dual-mode Bluetooth stack TI-BT-4-2-STACK-LINUX-ADDON. It may also be used with other Linux stacks like BlueZ.

To use this service-pack with the TI-BT-4-2-STACK-LINUX-ADDON, the TIInit_6.7.16.bts file should be copied to the [target-root]/lib/firmware directory. For additional usage details, please refer to the relevant stack documentation.

- **Initscripts-TIInit_6.7.16_bt_spec_4.1.bts**

  This file contains the main service-pack for CC256xB controller. This file must be downloaded first when initializing the CC256xB controller. It is generally used for hardware evaluation tools like HCITester. When using the TI dual-mode Bluetooth stack for MCUs or Linux, use the converted files listed above.

- **Initscripts-TIInit_6.7.16_avpr_add-on.bts**

  This file contains the AVPR add-on to the CC256xB service-pack. If using A3DP or WBS features, this add-on must be downloaded after the main service-pack during CC256xB initialization. This file is generally used for hardware evaluation tools like HCITester. When using the TI dual-mode Bluetooth stack for MCUs or Linux, use the converted files listed above.

- **Initscripts-TIInit_6.7.16_ble_add-on.bts**

  This file contains the BLE add-on to the CC256xB service-pack. If using BLE feature, this add-on must be downloaded after the main service-pack during CC2564B initialization. This file is generally used for hardware evaluation tools like HCITester. When using the TI dual-mode Bluetooth stack for MCUs or Linux, use the converted files listed above.

1.2.2. XML library

The XML file TIInit_6.7.16.xml contains the HCI and LMP command library for CC256xB device. This file is required to use when using tools like HCITester and CC256x Logger.

1.2.3. ILI configuration file

The TIInit_6.7.16.ili file is used to decode the Bluetooth firmware traces from the CC256xB device using the CC256x Logger tool.

1.3. BLE enable

Using the BLE requires running an additional script “initscripts-TIInit_6.7.16_ble_add-on.bts” after running the main service-pack “initscripts-TIInit_6.7.16_bt_spec_4.1.bts”, which enables the BLE, as it is not enabled by default.
When using the CC2564B device with the TI dual-mode Bluetooth stack, this procedure is automatically handled by the Bluetooth stack as long as the CC256XB.h file (description above) is copied to the stack directory (<install_dir>\Bluetopia\btpsvend\).

1.4. Assisted A2DP(A3DP) or WBS enable

Using the Assisted modes (A3DP / WBS) require running an additional script “initscripts-TIInit_6.7.16_avpr_add-on.bts” after running the main service-pack “initscripts-TIInit_6.7.16_bt_spec_4.1.bts”, which enables the AVPR, as it is not enabled by default.
When using the CC256xB device with the TI dual-mode Bluetooth stack, this procedure is automatically handled by the Bluetooth stack as long as the CC256XB.h file (description above) is copied to the stack directory (<install_dir>\Bluetopia\btpsvend\).

Note: Either BLE or AVPR can be enabled at a time. Please refer to the CC2564B device datasheet for more details.

2. Updated fixes in Service Pack 1.8

BT SIG	Updated the default value of minimum LMP encryption key size to 7 octets to comply with the Bluetooth Expedited Errata Correction 11838. *Note: the minimum LMP encryption key size was set to 5 octets by default in older releases.*

3. Fixes in Service Pack 1.7

BLE / Test	Fixed a bug in the HCI_VS_DRPb_Tester_Con_TX(0xFD84) command for BLE modulation. After this fix, the HCI_VS_DRPb_Tester_Con_TX command should use the proper output power for BLE modulation as specified in the HCI_VS_LE_Output_Power(0xFDDD) and HCI_VS_DRPb_Set_Power_Vector (0xFD82) commands or the default value from the device service-pack.
BLE	Fixed a protocol collision condition when peer sent 2 consecutive connection update request PDUs.

4. Fixes in Service Pack 1.6

BLE	When there was already one or more BLE connection active for at least 12 hours, connecting another BLE device resulted in a non-optimal BLE connection offset ('d'). This bug caused a lag in BLE data which was sent only after the link supervision timeout.
BLE	BLE disconnection might have occurred after several minutes if an already existing BLE connection in parallel with an ACL connection (slave mode) was present.

5. Fixes in Service Pack 1.5

BT BLE Coex	On certain race conditions, the device could lockup while BLE and ACL connections were active, and another BLE connection was being established.
SW Flow Control	For hosts working with SW flow control, there could be a missed tx packet during excessive BLE continuous transmission.

6. Fixes in Service Pack 1.4

Initialization	In certain platforms, there could be a race condition where calibration didn't complete successfully during init, which resulted in device becoming unresponsive

7. Fixes in Service Pack 1.3

BT BLE Coex	If BLE interval was shorter than 24 frames, A2DP quality was degraded due to using only 3DH1 packets
BT BLE Coex	BLE interval was multiplied (x2 or x3) during BT high throughput scenario without notifying the peer
BLE	In a certain rare/race condition, BLE connection complete event was malformed
BLE	Device could reach a lockup state if BLE Adv interval was very short
BT Connection	BT connection might not have been established successfully if both local and peer started the process at the same time
IOP	If host disabled role switch, connection to iPhone 6 was not set up successfully
Current Consumption	AVPR processor did not go into low power mode. This resulted in higher current consumption
WBS	The PCM clock accuracy had to be less than 10ppm when the CC256XB was the PCM slave during WBS mode. Higher PPM deviation may have lead to high packet loss (“ticks”) at the PCM interface, or device lockup due to the clock drifts between the BT network and PCM bus
A3DP	Device could reach a lockup state when using A3DP SOURCE to 2 SINK devices feature

BLE	Fixed an issue where packets with bad CRC were sent to remote device
BLE	Fixed an issue where device could reach a lockup state if both local and peer devices terminated the BLE connection at the same time
Test Mode	BLE TX start needed to be issued twice if number of packets was set in “HCI_VS_Set_LE_Test_Mode_Parameters” command
Configuration	There was an issue in the HCI_VS_Write_CODEC_Config (0xFD06) command when using “Fsynch Multiplier” field. If the “Frame-sync duty cycle” is set to 0 (50% duty cycle), this value may not have been calculated correctly
HFP/A3DP	No voice was heard when creating NBS after closing the A3DP stream and without disconnecting the ACL
BT SIG	BT4.0 was reported instead of BT4.1 in LMP_VER_RES
BLE A2DP Coex	Device could reach a lockup state if BLE and A2DP were working concurrently
BT Connection	6 sniff connections and 1 active ACL connection resulted in device lockup. Solution is to limit the number of sniff connections to only 5 in the controller, where the rest of the connections (2) would be active
Inquiry Scan	In rare conditions, inquiry scan could have gotten stuck, which lead to device not being discoverable

8. Fixes in Service Pack 1.2

New Init scripts	New init scripts added divided into three different files: Main init script - BT file with latest improvements BLE init script - BLE add on AVPR init script - WBS support	In order to operate chip first use the Main init script and use the relevant add on. **Important Note:** Both add on files can't operate at the same time

	and Assisted A2DP add on	
PCM Clock extension	PCM clock extension support When CC2564 device is the master of the PCM BUS, allows the system to keep the PCM clock running even when no A3DP channel is open	The new VS command HCI_VS_Enable_PCM_Clock_Extension 0xfe4c Receives one parameter (UINT16) which indicates the time to keep the pcm clock on 0 - Keep PCM clock on forever 0xFFFF - Disable PCM clock extension - default value
Sniff	Improved collision handling in Sniff mode Fixed collision between Sniff sub rate and exit sniff	

9. Fixes in Service Pack 1.1

Assisted A2DP	PCM clock tracking mechanism when Master over the PCM, Improved skew alignment between channels	New features added to Multi Room support
LM	Improved multiple LMP handling simultaneously. Receiving packet type table request during secure simple pairing resulted in unsuccessful connection, this issue is fixed in this version	
Clock accuracy	Better clock resolution result received from hci_read_clock	Resolution of 312.5 uS
BLE stability	Improved Interoperability for spec 4.1	
Low power	Better Immunity to hardware noise over the UART lines	

support

10. Fixes in Service Pack 1.0

BT SIG	BT 4.1 support	No new features were added
Host I/F	Added new event "vs_reject_voice_link_event" upon remote attempting to establish 3rd voice connection (2 voice connections are already active)	
ETSI	ETSI 300 328 version 1.8.1 might still have failed despite the fix in service pack 0.2	
Stability	Remote name request during A2DP data streaming might have resulted in BT getting stuck	
Stability	When running loop of BLE connect-disconnect (with page scan running in background), slave side might get stuck at establishment of BLE connection	
Assisted A2DP	Add support for host flow control in assisted A2DP SNK	
Assisted A2DP	Fix occasional drop outs in assisted A2DP SNK	
BLE	BLE slave ignored "LL terminate" indication if was busy with other peer transaction	
Current Consumption	High current draw due to slave exiting latency from reception of “LL channel map” or “LL connection update” until instant	
Current Consumption	Device did not enter deep sleep in sniff mode after setting LSTO to 5 seconds	

11. Fixes in Service Pack 0.2

ETSI	ETSI 300 328 version 1.8.1	
Assisted A2DP	Assisted A2DP Sink - Audio Dropout Issue	
Assisted A2DP	Update Codec Configuration API to support better frequency resolution	processors.wiki.ti.com/index.php/CC256x_VS_HCI_Commands#HCI_VS_Write_CODEC_Config_.280xFD06.29
Host I/F	Added support to host flow control during assisted A2DP	
BLE	Fix BLE slave latency behavior during transactions	

12. Fixes in Service Pack 0.1

Current Consumption	Deep Sleep was not enabled after enable and disable advertising mode	Recreated 15% of the time when enable and disable advertising within a 2-3 second period
BLE	Missing BLE disconnection event after sending HCI disconnect command	The command status event was executed