



IS1870/71 & BM70/71 Firmware 2.03 Release Notes

1 Overview

Firmware version 2.0 is a maintenance release for IS1870, IS1871, BM70, and BM71. Firmware version 2.0 adds new features/ removes limitations in previous release 1.11. This firmware is made available on Microchip's web site for existing IC's and modules.

1.1 Resolved Issues

- Fixed read ADC command problem for temperature detection.
- Fixed Sneyntooth BLE vulnerabilities in LL, SMP and L2CAP layers.
- Fixed disconnection issue with Xiaomi Mi 10 Pro Phone.
- Fixed MPAF OTA update UI fail issue.
- Fixed HID over GATT issue.
- Fixed an issue where pairing fails in Multilink scenario with reason DHKey failure check.
- Fixed Instant Pass Issue for Multilink scenarios (LL_STATUS_ERROR_INSTANT_PASSED/0x28)
- IOP Pairing fail issue with Samsung S8 Verizon variant.
- Write to Flash is enabled for few manual pattern commands like WRITE DEVICE NAME command (0x08).
- Fixed issue where AutoPattern Mode BM70 outputs manual mode data from UART.
- Fixed an issue where the application always starts passive scan irrespective of whether scan type is set to passive or active.
- Fixed an issue where the SCAN_RES is displayed as ADV_IND.
- Fixed an issue where ADC return value was shown incorrectly.
- Fixed an issue where connection was getting terminated due to MIC failure in Multilink scenario.

1.2 New Features

- BLE Data Length Extension to max 251 bytes.
- Maximum BLE ATT MTU size is 247 bytes
- AFH channel map adjusted automatically when BLEDK3 is Central role
- Supports LE privacy feature v1.1 (disabled by default in UI settings)
- Enhance data transmission throughput in Auto pattern mode
- Supports following in auto pattern mode
 - BLEDK3 v2.0 to be GAP Central role
 - It allows two nearby BLEDK3 v2.0 devices with auto pattern to establish BLE link

automatically

- Multi-link/Multi-role capability in Manual mode
 - Maximum 4 BLE links can exist simultaneously (with Multi-link device as Central for all links). When the multi-link device is in Peripheral role for at least one link the maximum number of links is limited to 2. Below shows the valid combination of multi-link possibility

	BLE multi-link	BLEDK3 v2.0 Role	Other peer devices	Note
Case 1	One BLE link	Central	Peripheral	OK
		Peripheral	Central	OK
Case 2	Two BLE links	Central	Two independent Peripherals	OK
		Peripheral	Two independent Centrals	Sometimes link loss happened within 1 hour
		Parallel Central and Peripheral	Two independent Peripheral and Central	Sometimes link loss happened within 1 hour
Case 3	Three BLE links	Central	Three independent Peripherals	OK
Case 4	Four BLE links	Central	Four independent Peripherals	OK

Note: Multilink scenario with BM70 as Central for two links and Peripheral for third link is also supported. Limitations apply.

- Added new UART commands in Manual mode
- Queued writes are enabled (Queued writes now enabled for characteristics within a service)
- Auto pattern data to be transmitted only when End of data is indicated using GPIO.
Note: Auto pattern Test tool does not support this feature. However, when MCU application is implemented this feature can be used.
- Added UART Parity and Stop bit configuration in UI tool.
Note: Parity enabling is not supported in Manual pattern Test tool /Auto Test pattern tool as these tool access the MCP 2200 UART to USB converter. MCP 2200 supports fixed stop bit and does not support parity.

1.3 Known Issues and Limitation

- [Phone]
 - Max to 251 bytes Data Length just may be supported in Android 6.x and iPhone 7 later, but the actual LE data packet length transmitted between BLEDK3 v2.0 and smart phone still referring to the result of Data Length Update procedure.
- [BLEDK3 v2.0]
 - If LE privacy feature v1.1 is enabled, with Auto Pattern application of BLEDK3 v2.0, random privacy address will be the same after every boot up of system, because random privacy address uses system clock as seed to generate random number
- [BLEDK3 v2.0][Manual Pattern]
 - For multi-link case 4 with lower baud rate, while BLEDK3 v2.0 (Central) transmits large block size data bilaterally with each Peripheral at the same time, BLEDK3 v2.0 (Central) may run out of Heap memory after long time period
- [BLEDK3 v2.0][Auto Pattern]
 - If BLEDK3 v2.0 use trust device feature, after disconnection occurs with unbonded remote device, BLEDK3 v2.0 will fail to respond LE protocol with bonded device and then cause the abnormal disconnection
- When both Scan and advertising are enabled at the same time and device connects as Central, state indicates standby but device is not advertising
 - Workaround: Exit standby mode and enter standby mode again to start advertising.
- OTA is supported only for application bank. Complete BLEDK3 2.0 firmware cannot be upgraded with OTA.

1.4 PC Tools

Firmware 2.0 is used with the following PC tools included in the firmware package, or downloaded from the appropriate product pages below.

- IS187x_202_BLEDK3v2.00_UI v2.13 Configuration Editor for IS187x/BM7x
- BLEDK3 Manual Test Tool v0.49 Utility to test Manual Pattern Commands
- BLEDK3 Auto Pattern Test Tool v1.0_009 Utility to test Auto Pattern Mode Commands

1.5 Ordering Information

At the time of this publication 2.03 is released only as a firmware image on the product pages below. Contact your Microchip representative if 2.03 is required on BM70/71 module.

- www.microchip.com/BM70
- www.microchip.com/BM71
- www.microchip.com/IS1870
- www.microchip.com/IS1871

1.6 Firmware Update

BM70_71 modules and EVB, such as PICTails, can be updated to firmware 2.03 using the PC Utilities mentioned previously. The utilities are provided in the firmware package that can be downloaded from the appropriate product pages described above. To perform a firmware update follow the instructions provided in the firmware release.