



Product Change Notification - SYST-28LESW804

Date:

29 Jan 2019

Product Category:

Bluetooth Module

Affected CPNs:



Notification subject:

ERRATA - BM70/BM71/RN4870/RN4871 Bluetooth Low Energy Module Errata Errata Document Revision

Notification text:

SYST-28LESW804

Microchip has released a new DeviceDoc for the BM70/BM71/RN4870/RN4871 Bluetooth Low Energy Module Errata of devices. If you are using one of these devices please read the document located at [BM70/BM71/RN4870/RN4871 Bluetooth Low Energy Module Errata](#).

Notification Status: Final

Description of Change: Initial errata document release.

Impacts to Data Sheet: None

Reason for Change: To Improve Productivity

Change Implementation Status: Complete

Date Document Changes Effective: 29 Jan 2019

NOTE: Please be advised that this is a change to the document only the product has not been changed.

Markings to Distinguish Revised from Unrevised Devices: N/A

Attachment(s):

[BM70/BM71/RN4870/RN4871 Bluetooth Low Energy Module Errata](#)

Please contact your local [Microchip sales office](#) with questions or concerns regarding this notification.

Terms and Conditions:

If you wish to [receive Microchip PCNs via email](#) please register for our PCN email service at our [PCN home page](#) select register then fill in the required fields. You will find instructions about registering for Microchips PCN email service in the [PCN FAQ](#) section.

If you wish to [change your PCN profile, including opt out](#), please go to the [PCN home page](#) select login and sign into your myMicrochip account. Select a profile option from the left navigation bar and make the applicable selections.



BM70/BM71/RN4870/RN4871

Bluetooth® Low Energy Module Errata

BM70/BM71/RN4870/RN4871 Family Errata

The BM70/BM71/RN4870/RN4871 family of devices that you have received conform functionally to the current device datasheet located on the Microchip website ([BM70](#), [BM71](#), [RN4870](#), and [RN4871](#)), except for the anomalies that are described in this document.

Affected Devices

Erratum	Affected Devices
Invalid Bluetooth Address	BM70, BM71, RN4870, and RN4871
P1_6 Pin is Driven Low during Firmware Start-up	RN4871, and BM71 series

Table of Contents

BM70/BM71/RN4870/RN4871 Family Errata.....	1
Affected Devices.....	1
1. Invalid Bluetooth Address.....	3
2. P1_6 Pin is Driven Low during Firmware Start-up.....	4
3. Document Revision History.....	5
The Microchip Web Site.....	6
Customer Change Notification Service.....	6
Customer Support.....	6
Microchip Devices Code Protection Feature.....	6
Legal Notice.....	7
Trademarks.....	7
Quality Management System Certified by DNV.....	8
Worldwide Sales and Service.....	9

1. Invalid Bluetooth Address

Issue

Under a certain set of operating conditions, the BM70/BM71/RN4870/RN4871 may exhibit the following symptoms:

- %UNKNOWN DEVICE% during reboot
- BT address 000000000000

The CPU program counter can be corrupted under the following conditions:

1. After a slow rise of VBAT / BOR event with a dwell time > 10 mS between 0.95 VDC and 1.1 VDC
2. Voltage back feed through a GPIO pin before VBAT is applied

Once the program counter is corrupted, it is possible to execute a section of code that erases the Information Block of Flash memory (PFM sector holding manufacturing information, including calibrations and Bluetooth address).

Workarounds

1. To prevent this from occurring, a software write-protect feature is provided in BM70/BM71 firmware v1.11 and RN4870/RN4871 firmware v1.30, which ensures the memory is not altered if the Flash modification operations are called inadvertently. Update BM70/BM71 devices to firmware 1.11 or newer and RN4870/RN4871 to firmware 1.30 or newer. Follow the firmware update instructions provided in the device user guide and web page for each type of module.
2. Use the latest CPNs for new designs:
 - 2.1. BM70BLES1FC2-0B04AA
 - 2.2. BM71BLES1FC2-0B04AA
 - 2.3. RN4870-I/RM130
 - 2.4. RN4871-I/RM130

2. P1_6 Pin is Driven Low during Firmware Start-up

Issue

The P1_6 pin of the RN4871/BM71 series is configured as output and pulled low during the firmware start-up. The P1_6 pin is driven low after 22 ms (approximate) from start-up and the pin is in low level state for 1.6 ms (approximate) before it goes to an input state.

There is a possibility for high in-rush current on this pin when an external MCU with high source current capability drives it high during this time.

Workaround

Set the external MCU pin connected to P1_6 pin of the RN4871/BM71 series to an input as default. Wait for this pin to transition from a low level to high level before configuring this MCU pin to the output mode.

3. Document Revision History

Revision	Date	Section	Description
A	01/2019	Document	Initial Revision

The Microchip Web Site

Microchip provides online support via our web site at <http://www.microchip.com/>. This web site is used as a means to make files and information easily available to customers. Accessible by using your favorite Internet browser, the web site contains the following information:

- **Product Support** – Data sheets and errata, application notes and sample programs, design resources, user's guides and hardware support documents, latest software releases and archived software
- **General Technical Support** – Frequently Asked Questions (FAQ), technical support requests, online discussion groups, Microchip consultant program member listing
- **Business of Microchip** – Product selector and ordering guides, latest Microchip press releases, listing of seminars and events, listings of Microchip sales offices, distributors and factory representatives

Customer Change Notification Service

Microchip's customer notification service helps keep customers current on Microchip products. Subscribers will receive e-mail notification whenever there are changes, updates, revisions or errata related to a specified product family or development tool of interest.

To register, access the Microchip web site at <http://www.microchip.com/>. Under "Support", click on "Customer Change Notification" and follow the registration instructions.

Customer Support

Users of Microchip products can receive assistance through several channels:

- Distributor or Representative
- Local Sales Office
- Field Application Engineer (FAE)
- Technical Support

Customers should contact their distributor, representative or Field Application Engineer (FAE) for support. Local sales offices are also available to help customers. A listing of sales offices and locations is included in the back of this document.

Technical support is available through the web site at: <http://www.microchip.com/support>

Microchip Devices Code Protection Feature

Note the following details of the code protection feature on Microchip devices:

- Microchip products meet the specification contained in their particular Microchip Data Sheet.
- Microchip believes that its family of products is one of the most secure families of its kind on the market today, when used in the intended manner and under normal conditions.
- There are dishonest and possibly illegal methods used to breach the code protection feature. All of these methods, to our knowledge, require using the Microchip products in a manner outside the operating specifications contained in Microchip's Data Sheets. Most likely, the person doing so is engaged in theft of intellectual property.
- Microchip is willing to work with the customer who is concerned about the integrity of their code.

- Neither Microchip nor any other semiconductor manufacturer can guarantee the security of their code. Code protection does not mean that we are guaranteeing the product as “unbreakable.”

Code protection is constantly evolving. We at Microchip are committed to continuously improving the code protection features of our products. Attempts to break Microchip’s code protection feature may be a violation of the Digital Millennium Copyright Act. If such acts allow unauthorized access to your software or other copyrighted work, you may have a right to sue for relief under that Act.

Legal Notice

Information contained in this publication regarding device applications and the like is provided only for your convenience and may be superseded by updates. It is your responsibility to ensure that your application meets with your specifications. MICROCHIP MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND WHETHER EXPRESS OR IMPLIED, WRITTEN OR ORAL, STATUTORY OR OTHERWISE, RELATED TO THE INFORMATION, INCLUDING BUT NOT LIMITED TO ITS CONDITION, QUALITY, PERFORMANCE, MERCHANTABILITY OR FITNESS FOR PURPOSE. Microchip disclaims all liability arising from this information and its use. Use of Microchip devices in life support and/or safety applications is entirely at the buyer’s risk, and the buyer agrees to defend, indemnify and hold harmless Microchip from any and all damages, claims, suits, or expenses resulting from such use. No licenses are conveyed, implicitly or otherwise, under any Microchip intellectual property rights unless otherwise stated.

Trademarks

The Microchip name and logo, the Microchip logo, AnyRate, AVR, AVR logo, AVR Freaks, BitCloud, chipKIT, chipKIT logo, CryptoMemory, CryptoRF, dsPIC, FlashFlex, flexPWR, Heldo, JukeBlox, KeeLoq, Klear, LANCheck, LINK MD, maXStylus, maXTouch, MediaLB, megaAVR, MOST, MOST logo, MPLAB, OptoLyzer, PIC, picoPower, PICSTART, PIC32 logo, Prochip Designer, QTouch, SAM-BA, SpyNIC, SST, SST Logo, SuperFlash, tinyAVR, UNI/O, and XMEGA are registered trademarks of Microchip Technology Incorporated in the U.S.A. and other countries.

ClockWorks, The Embedded Control Solutions Company, EtherSynch, Hyper Speed Control, HyperLight Load, IntelliMOS, mTouch, Precision Edge, and Quiet-Wire are registered trademarks of Microchip Technology Incorporated in the U.S.A.

Adjacent Key Suppression, AKS, Analog-for-the-Digital Age, Any Capacitor, AnyIn, AnyOut, BodyCom, CodeGuard, CryptoAuthentication, CryptoAutomotive, CryptoCompanion, CryptoController, dsPICDEM, dsPICDEM.net, Dynamic Average Matching, DAM, ECAN, EtherGREEN, In-Circuit Serial Programming, ICSP, INICnet, Inter-Chip Connectivity, JitterBlocker, KlearNet, KlearNet logo, memBrain, Mindi, MiWi, motorBench, MPASM, MPF, MPLAB Certified logo, MPLIB, MPLINK, MultiTRAK, NetDetach, Omniscient Code Generation, PICDEM, PICDEM.net, PICKit, PICtail, PowerSmart, PureSilicon, QMatrix, REAL ICE, Ripple Blocker, SAM-ICE, Serial Quad I/O, SMART-I.S., SQI, SuperSwitcher, SuperSwitcher II, Total Endurance, TSHARC, USBCheck, VariSense, ViewSpan, WiperLock, Wireless DNA, and ZENA are trademarks of Microchip Technology Incorporated in the U.S.A. and other countries.

SQTP is a service mark of Microchip Technology Incorporated in the U.S.A.

Silicon Storage Technology is a registered trademark of Microchip Technology Inc. in other countries.

GestIC is a registered trademark of Microchip Technology Germany II GmbH & Co. KG, a subsidiary of Microchip Technology Inc., in other countries.

All other trademarks mentioned herein are property of their respective companies.

© 2018, Microchip Technology Incorporated, Printed in the U.S.A., All Rights Reserved.

ISBN: 978-1-5224-4039-0

Quality Management System Certified by DNV

ISO/TS 16949

Microchip received ISO/TS-16949:2009 certification for its worldwide headquarters, design and wafer fabrication facilities in Chandler and Tempe, Arizona; Gresham, Oregon and design centers in California and India. The Company's quality system processes and procedures are for its PIC[®] MCUs and dsPIC[®] DSCs, KEELOQ[®] code hopping devices, Serial EEPROMs, microperipherals, nonvolatile memory and analog products. In addition, Microchip's quality system for the design and manufacture of development systems is ISO 9001:2000 certified.



MICROCHIP

Worldwide Sales and Service

AMERICAS	ASIA/PACIFIC	ASIA/PACIFIC	EUROPE
Corporate Office 2355 West Chandler Blvd. Chandler, AZ 85224-6199 Tel: 480-792-7200 Fax: 480-792-7277 Technical Support: http://www.microchip.com/support Web Address: www.microchip.com	Australia - Sydney Tel: 61-2-9868-6733 China - Beijing Tel: 86-10-8569-7000 China - Chengdu Tel: 86-28-8665-5511 China - Chongqing Tel: 86-23-8980-9588 China - Dongguan Tel: 86-769-8702-9880 China - Guangzhou Tel: 86-20-8755-8029 China - Hangzhou Tel: 86-571-8792-8115 China - Hong Kong SAR Tel: 852-2943-5100 China - Nanjing Tel: 86-25-8473-2460 China - Qingdao Tel: 86-532-8502-7355 China - Shanghai Tel: 86-21-3326-8000 China - Shenyang Tel: 86-24-2334-2829 China - Shenzhen Tel: 86-755-8864-2200 China - Suzhou Tel: 86-186-6233-1526 China - Wuhan Tel: 86-27-5980-5300 China - Xian Tel: 86-29-8833-7252 China - Xiamen Tel: 86-592-2388138 China - Zhuhai Tel: 86-756-3210040	India - Bangalore Tel: 91-80-3090-4444 India - New Delhi Tel: 91-11-4160-8631 India - Pune Tel: 91-20-4121-0141 Japan - Osaka Tel: 81-6-6152-7160 Japan - Tokyo Tel: 81-3-6880-3770 Korea - Daegu Tel: 82-53-744-4301 Korea - Seoul Tel: 82-2-554-7200 Malaysia - Kuala Lumpur Tel: 60-3-7651-7906 Malaysia - Penang Tel: 60-4-227-8870 Philippines - Manila Tel: 63-2-634-9065 Singapore Tel: 65-6334-8870 Taiwan - Hsin Chu Tel: 886-3-577-8366 Taiwan - Kaohsiung Tel: 886-7-213-7830 Taiwan - Taipei Tel: 886-2-2508-8600 Thailand - Bangkok Tel: 66-2-694-1351 Vietnam - Ho Chi Minh Tel: 84-28-5448-2100	Austria - Wels Tel: 43-7242-2244-39 Fax: 43-7242-2244-393 Denmark - Copenhagen Tel: 45-4450-2828 Fax: 45-4485-2829 Finland - Espoo Tel: 358-9-4520-820 France - Paris Tel: 33-1-69-53-63-20 Fax: 33-1-69-30-90-79 Germany - Garching Tel: 49-8931-9700 Germany - Haan Tel: 49-2129-3766400 Germany - Heilbronn Tel: 49-7131-67-3636 Germany - Karlsruhe Tel: 49-721-625370 Germany - Munich Tel: 49-89-627-144-0 Fax: 49-89-627-144-44 Germany - Rosenheim Tel: 49-8031-354-560 Israel - Ra'anana Tel: 972-9-744-7705 Italy - Milan Tel: 39-0331-742611 Fax: 39-0331-466781 Italy - Padova Tel: 39-049-7625286 Netherlands - Druenen Tel: 31-416-690399 Fax: 31-416-690340 Norway - Trondheim Tel: 47-72884388 Poland - Warsaw Tel: 48-22-3325737 Romania - Bucharest Tel: 40-21-407-87-50 Spain - Madrid Tel: 34-91-708-08-90 Fax: 34-91-708-08-91 Sweden - Gothenberg Tel: 46-31-704-60-40 Sweden - Stockholm Tel: 46-8-5090-4654 UK - Wokingham Tel: 44-118-921-5800 Fax: 44-118-921-5820

SYST-28LESW804 - ERRATA - BM70/BM71/RN4870/RN4871 Bluetooth Low Energy Module Errata Errat

Affected Catalog Part Numbers(CPN)

BM70BLE01FC2-0002AA
BM70BLE01FC2-0B03AA
BM70BLE01FC2-0B04AA
BM70BLES1FC2-0002AA
BM70BLES1FC2-0B03AA
BM70BLES1FC2-0B04AA
BM70BLES1FC2-P002AA
BM71BLE01FC2-0002AA
BM71BLE01FC2-0B02AA
BM71BLE01FC2-0B04AA
BM71BLES1FC2-0002AA
BM71BLES1FC2-0B02AA
BM71BLES1FC2-0B04AA
RN4870-I/RM128
RN4870-I/RM130
RN4870-V/RM118
RN4870U-V/RM118
RN4871-I/RM128
RN4871-I/RM130
RN4871-V/RM118
RN4871-V/RM130
RN4871U-V/RM118