

APM32F072xB

Errata Sheet

Version: V 2.0

Contents

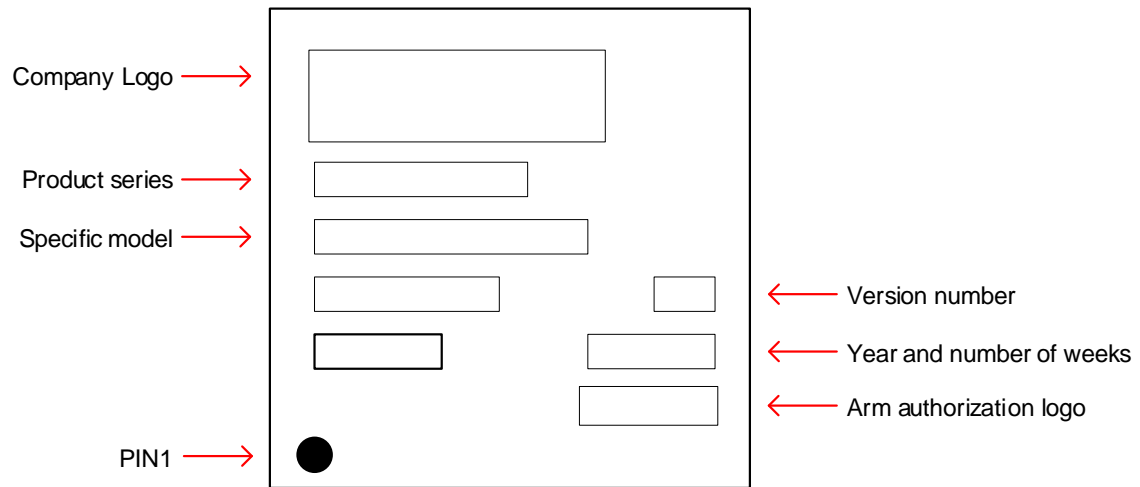
1 Introduction	2
2 Product Version and Silk Screen Printing Instructions	3
3 Errata List.....	4
4 System	5
4.1 Delay.....	5
4.2 RTC.....	5
5 GPIO	6
5.1 BOOT pin.....	6
5.2 TSC_IO sampling	6
5.3 TSC_CNT6 difference	6
5.4 Pin level delay.....	7
6 SPI.....	8
6.1 SPI low-voltage switching polarity	8
6.2 I2S.....	8
7 Analog mode	9
7.1 Comparator	9
8 Clock	10
8.1 PLL low-frequency output is unstable.....	10
9 Tool.....	11
9.1 Burning.....	11
9.2 IAR compatibility	11
9.3 ISP download.....	11
10 Revision history.....	12

1 Introduction

This Manual mainly introduces the limitations of the APM32F072xB series products during use. If you encounter the application scenarios described in the manual during the use of the product, please use the product according to the solutions provided in the manual; if no solution is provided, please avoid this application scenario.

2 Product Version and Silk Screen Printing Instructions

Figure 1 Product Version and Silk Screen Printing Instructions



3 Errata List

Table 1 Errata List

Category	Introduction	Product version	
		A1/A2	A5
System	Delay	•	•
	RTC	•	•
GPIO	BOOT pin	•	•
	TSC_IO sampling	•	×
	TSC_CNT6 difference	•	×
	Pin level delay	•	•
SPI	SPI low-voltage switching polarity	•	•
	I2S	•	•
Analog mode	Comparator	•	•
Clock	PLL low-frequency output is unstable	•	×
Tool	Burning	•	•
	IAR compatibility	•	•
	ISP download	•	×

Note: "•" indicates that this errata description is involved in this version; the 'X' indicates that it is not involved in this version.

4 System

4.1 Delay

Problem description

When performing level flipping under software delay for (i=0; i<1000; i++), the pulse width interval is unstable.

Solutions

Achieve accurate delay through a timer.

4.2 RTC

Problem description

Configure the automatic wakeup overload value for RTC, select wakeup output, and the period of PC13 output waveform is about 30us less than the set value. When the set value is 122us, the measured value is 90us; when the set value is 244us, the measured value is 212us.

Solutions

When using PC13 to output pulses, it is recommended to use negative pulse for output.

5 GPIO

5.1 BOOT pin

Problem description

When BOOT0 pin is floating:

- When the memory of the main flash is not selected as the startup area, the chip may be unable to execute the program normally.
- The chip executes the program normally, but after pressing the reset key, the chip may not have selected the main flash memory as the startup area.

Solutions

According to the specification requirements, the BOOT0 pin needs to be grounded when starting from Flash normally.

5.2 TSC_IO sampling

Problem description

When the first I/O of each TSC group is used as the sampling I/O and the second I/O is used as the charging I/O, and the TSC_IOHCR values of the Schmitt hysteresis registers are 0xEEEEEEEE and 0xFFFFFFFF respectively, the charging time after enabled is longer than that not enabled. But under normal circumstances, the charging time after enabled is shorter than that not enabled.

Solutions

When enabling TSC, it is recommended to enable the Schmitt hysteresis registers uniformly.

5.3 TSC_CNT6 difference

Problem description

The same TSC_CNT has significant differences in its values at different I/O rates.

When the maximum error count of TSC is set to be smaller than TSC_CNT, it will be impossible to set the flag bit of the corresponding channel.

- The first I/O of each group is used for electrode charging, and the second is used for sampling I/O.

I/O is configured in high-speed mode, and TSC_CNT2 and TSC_CNT6 are about 2500.

I/O is configured in low-speed mode, and TSC_CNT2 and TSC_CNT6 are about 700 or 1200.

- The second I/O of each group is used for electrode charging, and the first is used for sampling I/O.

I/O is configured in high-speed mode, and TSC_CNT3 is within 3000~5000.

I/O is configured in low-speed mode, and TSC_CNT3 is about 1000.

Solutions

Choose either of the following solutions:

- I/O rate is configured as low speed;
- Change the maximum error count setting of TSC.

5.4 Pin level delay

Problem description

When Switching the I/O pin mode directly from "push-pull output high level" to "input mode", there is a level delay phenomenon. For example, at room temperature and low voltage of 25°C and 2.0V, there is a level delay phenomenon when GPIO switches from push-pull pull-up input high level to pull-down input.

Solutions

Choose either of the following solutions:

- After the push-pull output high-level is completed, insert the push-pull low-level output or configure as open-drain pull-up output mode, and then switch to input mode.
- Increase the duration of the input/output pull-down input mode (e.g. 3s).

6 SPI

6.1 SPI low-voltage switching polarity

Problem description

Switching the SPI clock polarity at low voltage will cause invalid data 0xFF and valid data to be stored in the shift register and data register, resulting in SPI bus data exception.

Solutions

Choose either of the following solutions:

- When SPE(SPI_CR[6]) is 1, the value of CPOL/CPHA(SPI_CR[1]) cannot be changed.
- When changing the SPI configuration, the software will set SPE to 0 first.

6.2 I2S

Problem records

When I2S1 or I2S2 is configured as slave transmission mode and the clock polarity is configured to high, it will result in data misalignment.

Solutions

When all pin attributes of I2S1 and I2S2 are configured as follows, normal communication can be achieved:

GPIO_Mode = GPIO_Mode_AF

GPIO_PuPd = GPIO_PuPd_UP

7 Analog mode

7.1 Comparator

Problem description

Configure COMP1/COMP2 to extremely low power, and under the extreme input signal sources (e.g. when the period of the sine wave is too small, for example, $T=13\mu s$), the COMP_OUT of COMP1 and COMP2 will maintain a constant high-level output after outputting a small square wave band.

Solutions

By modifying the mode of the comparator from extremely low power to low power, COMP_SUT can output normally.

8 Clock

8.1 PLL low-frequency output is unstable

Problem description

The PLL output frequency of the chip is low (e.g. less than 24MHz) and the frequency is unstable.

Solutions

Choose either of the following solutions:

- When using PLL multiplication, first use a large multiplication coefficient to increase the frequency of the VCO, and then output at a lower frequency. For example, increase the PLL frequency to 48MHz and then divide its frequency to 24MHz through an AHB prescaler.
- Related problems can be solved by migrating the A5 version.

9 Tool

9.1 Burning

Problem description

When the xxT packet is used on Keil5.27 version, it cannot be burnt through AP-LINK and ULINK2.

Solutions

Choose either of the following solutions:

- Use APEXMIC.APM32F0xx_DPF or keil.xTM32F1xx.DFP.2.2.0.pack.
- Modify keil.xTM32F0xx.DFP.pdsc, and the specific operation is as follows:
 - (1) Look for keil.xTM32F1xx.DFP.pdsc under the installation directory of Keil;
 - (2) Select the file, and right-click to choose the attributes;
 - (3) Remove the read-only attribute of the file;
 - (4) Open keil.xTM32F0xx.DFP.2.2.0.pack, and look for the location of Not a genuine xT Device! Abort connection;
 - (5) Try to find the following content:

```
<!--  
Query(0,"Not a genuine xT Device! Abort connection",1);  
Message(2,"Not a genuine xT Device! Abort connection.");  
-->
```
 - (6) Log out.

9.2 IAR compatibility

Problem description

In IAR 8.30.1 version, debugging cannot be performed normally if xxM32F072VB is used, and if M0+ core is selected, debugging can be performed.

Solutions

Download the IAR chip which supports the file package (Geehy.APM32F0xx.AddOn_v1.0.0.exe), and after installation, burning and debugging can be performed.

9.3 ISP download

Problem description

The chip may be unable to enter the DFU upgrade mode under ISP.

Solutions

Choose either of the following solutions:

- Consider using the IAP method for DFU download;
- Solve related problems by migrating the A5 or the new A1/A2 version.

10 Revision history

Table2 Document Revision History

Date	Version	Revision History
August 2024	1.0	New edition

Statement

This document is formulated and published by Geehy Semiconductor Co., Ltd. (hereinafter referred to as “Geehy”). The contents in this document are protected by laws and regulations of trademark, copyright and software copyright. Geehy reserves the right to make corrections and modifications to this document at any time. Read this document carefully before using Geehy products. Once you use the Geehy product, it means that you (hereinafter referred to as the “users”) have known and accepted all the contents of this document. Users shall use the Geehy product in accordance with relevant laws and regulations and the requirements of this document.

1. Ownership

This document can only be used in connection with the corresponding chip products or software products provided by Geehy. Without the prior permission of Geehy, no unit or individual may copy, transcribe, modify, edit or disseminate all or part of the contents of this document for any reason or in any form.

The “极海” or “Geehy” words or graphics with “®” or “TM” in this document are trademarks of Geehy. Other product or service names displayed on Geehy products are the property of their respective owners.

2. No Intellectual Property License

Geehy owns all rights, ownership and intellectual property rights involved in this document.

Geehy shall not be deemed to grant the license or right of any intellectual property to users explicitly or implicitly due to the sale or distribution of Geehy products or this document.

If any third party’s products, services or intellectual property are involved in this document, it shall not be deemed that Geehy authorizes users to use the aforesaid third party’s products, services or intellectual property. Any information regarding the application of the product, Geehy hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party, unless otherwise agreed in sales order or sales contract.

3. Version Update

Users can obtain the latest document of the corresponding models when ordering Geehy products.

If the contents in this document are inconsistent with Geehy products, the agreement in the sales order or the sales contract shall prevail.

4. Information Reliability

The relevant data in this document are obtained from batch test by Geehy Laboratory or cooperative third-party testing organization. However, clerical errors in correction or errors caused by differences in testing environment may occur inevitably. Therefore, users should understand that Geehy does not bear any responsibility for such errors that may occur in this document. The relevant data in this document are only used to guide users as performance parameter reference and do not constitute Geehy's guarantee for any product performance.

Users shall select appropriate Geehy products according to their own needs, and effectively verify and test the applicability of Geehy products to confirm that Geehy products meet their own needs, corresponding standards, safety or other reliability requirements. If losses are caused to users due to user's failure to fully verify and test Geehy products, Geehy will not bear any responsibility.

5. Legality

USERS SHALL ABIDE BY ALL APPLICABLE LOCAL LAWS AND REGULATIONS WHEN USING THIS DOCUMENT AND THE MATCHING GEEHY PRODUCTS. USERS SHALL UNDERSTAND THAT THE PRODUCTS MAY BE RESTRICTED BY THE EXPORT, RE-EXPORT OR OTHER LAWS OF THE COUNTRIES OF THE PRODUCTS SUPPLIERS, GEEHY, GEEHY DISTRIBUTORS AND USERS. USERS (ON BEHALF OR ITSELF, SUBSIDIARIES AND AFFILIATED ENTERPRISES) SHALL AGREE AND PROMISE TO ABIDE BY ALL APPLICABLE LAWS AND REGULATIONS ON THE EXPORT AND RE-EXPORT OF GEEHY PRODUCTS AND/OR TECHNOLOGIES AND DIRECT PRODUCTS.

6. Disclaimer of Warranty

THIS DOCUMENT IS PROVIDED BY GEEHY "AS IS" AND THERE IS NO WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, TO THE EXTENT PERMITTED BY APPLICABLE LAW.

GEEHY'S PRODUCTS ARE NOT DESIGNED, AUTHORIZED, OR WARRANTED FOR USE AS CRITICAL COMPONENTS IN MILITARY, LIFE-SUPPORT, POLLUTION CONTROL, OR HAZARDOUS SUBSTANCES MANAGEMENT SYSTEMS, NOR WHERE FAILURE COULD RESULT IN INJURY, DEATH, PROPERTY OR ENVIRONMENTAL DAMAGE.

IF THE PRODUCT IS NOT LABELED AS "AUTOMOTIVE GRADE," IT SHOULD NOT BE CONSIDERED SUITABLE FOR AUTOMOTIVE APPLICATIONS. GEEHY ASSUMES NO LIABILITY FOR THE USE BEYOND ITS SPECIFICATIONS OR GUIDELINES.

THE USER SHOULD ENSURE THAT THE APPLICATION OF THE PRODUCTS COMPLIES

WITH ALL RELEVANT STANDARDS, INCLUDING BUT NOT LIMITED TO SAFETY, INFORMATION SECURITY, AND ENVIRONMENTAL REQUIREMENTS. THE USER ASSUMES FULL RESPONSIBILITY FOR THE SELECTION AND USE OF GEEHY PRODUCTS. GEEHY WILL BEAR NO RESPONSIBILITY FOR ANY DISPUTES ARISING FROM THE SUBSEQUENT DESIGN OR USE BY USERS.

7. Limitation of Liability

IN NO EVENT, UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL GEEHY OR ANY OTHER PARTY WHO PROVIDES THE DOCUMENT AND PRODUCTS "AS IS", BE LIABLE FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, DIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE DOCUMENT AND PRODUCTS (INCLUDING BUT NOT LIMITED TO LOSSES OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY USERS OR THIRD PARTIES). THIS COVERS POTENTIAL DAMAGES TO PERSONAL SAFETY, PROPERTY, OR THE ENVIRONMENT, FOR WHICH GEEHY WILL NOT BE RESPONSIBLE.

8. Scope of Application

The information in this document replaces the information provided in all previous versions of the document.

© 2024 Geehy Semiconductor Co., Ltd. - All Rights Reserved