

Active T89C5115 Errata List

- **Timer 2 (Baud Rate Generator Mode) – Long Start Time**
- **UART – RB8 Lost with JBC on SCON Register**
- **ADC- Interrupt During Idle Conversion**
- **Flash/EEPROM – First Read After Load Disturbed**
- **C51 Core – Bad Exit of Power-down in X2 Mode**
- **Timer0/1 – Extra Interrupt**
- **Timer1 - Mode1 Does Not Generate Baud Rate Generator for UART**

T89C5115 Errata History

Lot Number	Errata List
All lots	1, 2, 3, 4, 5, 6,7

T89C5115 Errata Description

1. **Timer 2 (Baud Rate Generator Mode) – Long Start Time**

When Timer 2 is used as baud rate generator, TH2 is not loaded with RACP2H at the beginning, then UART is not operational before almost 10,000 machine cycles.

Workaround

Add in software an initialization of TH2 and TL2, with the value of RCAP2H and RCAP2L.

2. **UART - RB8 Lost With JBC on SCON Register**

When using the JBC instruction on any bit of SCON register, if RB8 changes from 1 to 0, the 0 bit can be lost.

Workaround

After each use clear RB8.

3. **ADC - Interrupt Controller/ADC Idle Mode/Loops In High Priority Interrupt**

The problem occurs during an A/D conversion in idle mode, if a hardware interrupt occurs followed by a second interrupt with higher priority before the end of the A/D conversion. If the above configuration occurs, the highest priority interrupt is served immediately after the A/D conversion. At the end of the highest priority interrupt service, the processor will not serve the hardware reset interrupt pending. It will also not serve any new interrupt requests with a priority lower than the high level priority last served.

Workaround

Disable all interrupts (Interrupt Global Enable Bit) before starting an A/D conversion in idle mode, then re-enable all interrupts immediately after.

4. **Flash/EEPROM – First Read After Load Disturbed**

In the "In-Application Programming" mode from the Flash, if the User software application load the Column Latch Area prior to call the programming sequence in the CAN Bootloader.



80C51 MCUs

T89C5115

Errata Sheet





The "Read after load" issue leads to a wrong Opcode Fetch during the column latch load sequence.

Workaround

Update of the Flash API Library. A NOP instruction has to be inserted after the load instruction.

```
MOVX @DPTR,A ;Load Column latches  
NOP ; ADDED INSTRUCTION
```

5. C51 Core – Bad Exit of Power-down in X2 Mode

When exiting power-down mode by interrupt while CPU is in X2 mode, it leads to bad execution of the first instruction run when CPU restarts.

Workaround

Set the CPU in X1 mode directly before entering power-down mode.

6. Timer0/1 – Extra Interrupt

When the Timer0 is in X1 mode and Timer1 in X2 mode and vice versa, extra interrupt may randomly occur for Timer0 or Timer1.

Workaround

Use the same mode for the two timers.

7. Timer1 – in Mode 1 Does Not Generate Baud Rate to UART.

The timer1, when used as a baud rate generator in mode 1 (16 bits counter) for low baud rates, does not generate baud rate to UART.

Workaround

No.

Active UART Bootloader Errata List

- Timer 2 and UART Are Not Stopped
- Watchdog and Flash API Starting the Bootloader Execution
- Autobaud False Start Bit Detection
- Flash API “__api_wr_code_page” with 0 Data in Length Parameter Field

UART Bootloader Errata History

Version Number	Errata List
1.0.0	1, 2, 3, 4

UART Bootloader Errata Description

1. Timer 2 and UART Are Not Stopped

When the bootloader receives the command “Start Application” (LJMP 0), the Timer 2 and the UART are not stopped.

Workaround

The application must have in its setup function a reset of Timer 2 and UART.

```

mov SCON, #00h
mov T2CON, #00h
mov RCAP2L, #00h
mov RCAP2H, #00h
mov TL2, #00h
mov TH2, #00h
    
```

2. Watchdog and Flash API Starting the Bootloader Execution

When an application call “__api_start_bootloader” or “__api_start_isp” routines while the watchdog is enabled, when the watchdog overflow it will restart the application instead of the bootloader

Workaround

Set BLJB(=1) before calling the __api_start_bootloader or __api_start_isp if the watchdog is used.

3. Autobaud False Start Bit Detection

UART autobaud sequence does not work on some special UARTs.

Some laptops have the UART TX line set to 0 when unused (COM port closed), this results in a false baud rate calculation on the ‘U’ character.

The autobaud sequence checks for a ‘0’ state (not a falling edge) on the Rx line of the UART microcontroller to detect the ‘start’ bit of the ‘U’ synchro character.

As this line is ‘0’ by default when COM port is closed, the autobaud routine starts its baudrate calculation at the opening sequence of the UART.

Workaround

A ‘Special Sync’ can be used with ‘FLIP’ software.

In this case, the open port event and the ‘U’ sent are dissociated. The user must first open his COM port with the ‘connect’ button, then reset its hardware and finally push the ‘sync’ button.

4. Flash API “__api_wr_code_page” with 0 Data in Length Parameter Field

When the flash API “__api_wr_code_page” is called with the field nb_data equal 0 then 255 data are wrote in flash.

Workaround

Include a test on nb_data before executed __api_wr_code_page routine.



Atmel Corporation

2325 Orchard Parkway
San Jose, CA 95131, USA
Tel: 1(408) 441-0311
Fax: 1(408) 487-2600

Regional Headquarters

Europe

Atmel Sarl
Route des Arsenaux 41
Case Postale 80
CH-1705 Fribourg
Switzerland
Tel: (41) 26-426-5555
Fax: (41) 26-426-5500

Asia

Room 1219
Chinachem Golden Plaza
77 Mody Road Tsimshatsui
East Kowloon
Hong Kong
Tel: (852) 2721-9778
Fax: (852) 2722-1369

Japan

9F, Tonetsu Shinkawa Bldg.
1-24-8 Shinkawa
Chuo-ku, Tokyo 104-0033
Japan
Tel: (81) 3-3523-3551
Fax: (81) 3-3523-7581

Atmel Operations

Memory

2325 Orchard Parkway
San Jose, CA 95131, USA
Tel: 1(408) 441-0311
Fax: 1(408) 436-4314

Microcontrollers

2325 Orchard Parkway
San Jose, CA 95131, USA
Tel: 1(408) 441-0311
Fax: 1(408) 436-4314

La Chantreterie

BP 70602
44306 Nantes Cedex 3, France
Tel: (33) 2-40-18-18-18
Fax: (33) 2-40-18-19-60

ASIC/ASSP/Smart Cards

Zone Industrielle
13106 Rousset Cedex, France
Tel: (33) 4-42-53-60-00
Fax: (33) 4-42-53-60-01

1150 East Cheyenne Mtn. Blvd.
Colorado Springs, CO 80906, USA
Tel: 1(719) 576-3300
Fax: 1(719) 540-1759

Scottish Enterprise Technology Park
Maxwell Building
East Kilbride G75 0QR, Scotland
Tel: (44) 1355-803-000
Fax: (44) 1355-242-743

RF/Automotive

Theresienstrasse 2
Postfach 3535
74025 Heilbronn, Germany
Tel: (49) 71-31-67-0
Fax: (49) 71-31-67-2340

1150 East Cheyenne Mtn. Blvd.
Colorado Springs, CO 80906, USA
Tel: 1(719) 576-3300
Fax: 1(719) 540-1759

Biometrics/Imaging/Hi-Rel MPU/ High Speed Converters/RF Datacom

Avenue de Rochepleine
BP 123
38521 Saint-Egreve Cedex, France
Tel: (33) 4-76-58-30-00
Fax: (33) 4-76-58-34-80

Literature Requests

www.atmel.com/literature

Disclaimer: The information in this document is provided in connection with Atmel products. No license, express or implied, by estoppel or otherwise, to any intellectual property right is granted by this document or in connection with the sale of Atmel products. **EXCEPT AS SET FORTH IN ATMEL'S TERMS AND CONDITIONS OF SALE LOCATED ON ATMEL'S WEB SITE, ATMEL ASSUMES NO LIABILITY WHATSOEVER AND DISCLAIMS ANY EXPRESS, IMPLIED OR STATUTORY WARRANTY RELATING TO ITS PRODUCTS INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT. IN NO EVENT SHALL ATMEL BE LIABLE FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL, PUNITIVE, SPECIAL OR INCIDENTAL DAMAGES (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF PROFITS, BUSINESS INTERRUPTION, OR LOSS OF INFORMATION) ARISING OUT OF THE USE OR INABILITY TO USE THIS DOCUMENT, EVEN IF ATMEL HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.** Atmel makes no representations or warranties with respect to the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Atmel does not make any commitment to update the information contained herein. Unless specifically provided otherwise, Atmel products are not suitable for, and shall not be used in, automotive applications. Atmel's products are not intended, authorized, or warranted for use as components in applications intended to support or sustain life.

© Atmel Corporation 2006. All rights reserved. Atmel®, logo and combinations thereof, and Everywhere You Are® are the trademarks or registered trademarks, of Atmel Corporation or its subsidiaries. Other terms and product names may be trademarks of others.



Printed on recycled paper.