

## Active T89C51CC01 Errata List

- Flash/EEPROM – First Read After Write Disturbed
- Flash/EEPROM – First Read After Load Disturbed
- Timer 2 – Baud Rate Generator – No IT When TF2 is Set by Software
- Timer 2 – Baud Rate Generator – Long Start Time
- UART – RB8 Lost with JBC on SCON Register
- ADC – Interrupt During Idle Conversion

## T89C51CC01 Errata History

| Lot Number                          | Errata List                       |
|-------------------------------------|-----------------------------------|
| A00151                              | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12 |
| A00369                              | 1, 3, 4, 5, 6, 7, 8, 9, 10, 12    |
| A00367, A00368,<br>A00396 to A00529 | 1, 3, 5, 6, 7, 8, 9, 10, 12       |
| A00510, all lots from A00588        | 1, 7, 8, 9, 10, 11, 12            |

## T89C51CC01 Errata Description

### 1. Flash/EEPROM – First Read After Write Disturbed

After a write of more than 32 bytes in the EEPROM and 16 bytes in the User Flash memory, the read of the first byte may be disturbed if it occurs just after the write.

#### Workaround

Do not load/write more than 32 bytes at a time for EEPROM memory.

Do not load/write more than 16 bytes at a time for User Flash memory,

OR perform a “dummy” read before reading the first byte,

OR wait 10 ms before reading the first byte.

### 2. Buffer Noise

Large bounces and high noise are generated when buffers are switching (both rising and falling edges).

#### Workaround

None.

### 3. Double IT on External Falling Edge on INT1 or INT0 in X2 Mode

When the CPU is in X2 mode and Timer1 or Timer 0 in X1 mode (CKCON = 0x7F), IEx flag is not cleared by hardware after servicing interrupt. In this case, the CPU executes the ISR a second time.

#### Workaround

The workaround is to clear IEx bit in Interrupt subroutine.

```
INT1_ISR :                               ; Interrupt sub routine
CLR IE1
.....
```



80C51 MCUs

T89C51CC01UA  
T89C51CC01CA

Errata Sheet

Rev. 4131C-8051-11/02



#### 4. **Movc Instruction on Boot Memory from Boot Memory Does Not Work**

No movc instruction is performed when a program running on the boot memory tries to read its own code using a movc instruction.

##### **Workaround**

None.

#### 5. **Power OFF Flag**

Power OFF Flag does not work.

##### **Workaround**

None.

#### 6. **CAN – Lost CAN Error Interrupt**

When a stuff error occurs during a CAN frame transmission on DPRAM write access, the controller does not generate the error interrupt and any received frame can generate a Receive interrupt.

##### **Workaround**

None.

#### 7. **Timer 2 – Baud Rate Generator – No IT When TF2 is Set by Software**

When Timer 2 is used in baud rate generator mode, setting TF2 by software does not generate an interrupt.

##### **Workaround**

Use Timer 1 instead of Timer 2 to generate baud rate and interrupt.

#### 8. **Timer 2 – Baud Rate Generator – Long Start Time**

When Timer 2 is used as a baud rate generator, TH2 is not loaded with RCAP2H at the beginning, then UART is not operational before 10000 machine cycles.

##### **Workaround**

Add the initialization of TH2 and TL2 in the initialization of Timer 2.

#### 9. **UART – RB8 Lost With JBC on SCON Register**

May lose RB8 value, if RB8 changes from 1 to 0 during JBC instruction on SCON register.

##### **Workaround**

Clear RB8 at the beginning of the code and after each time it goes to 1.

#### 10. **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 resettable interrupt occurs followed by a second interrupt with higher priority before the end of the A/D conversion. If the above configuration occurs, the high priority interrupt is served immediately after the A/D conversion. At the end of the high priority interrupt service, the processor will not serve the hardware resettable 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 Interrupt Bit) before starting an A/D conversion in idle mode, then re-enable all interrupts immediately after.

---

## 11. CAN – CANCONCH Harmless Corruption

The fix for Errata number 6 (Lost CAN Error Interrupt), fixes the problem. However, when the stuff error occurs, the CONCH1, CONCH0 bits in CANCONCH are corrupted. This corruption has no effect on the behavior of the Transmit channel.

### Workaround

No workaround is required, re-writing CANCONCH to start a new message resolves the corruption.

## 12. 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.

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
```

## 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
- Boot Process Compatibility
- Flash api “\_\_api\_wr\_code\_page” with 0 data in length parameter field

## UART Bootloader Errata History

| Version Number                | Errata List  |
|-------------------------------|--------------|
| 1.2 (1.1.2 displayed by FLIP) | 1, 2, 3      |
| 1.4                           | 1, 2, 3, 4,5 |

## 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

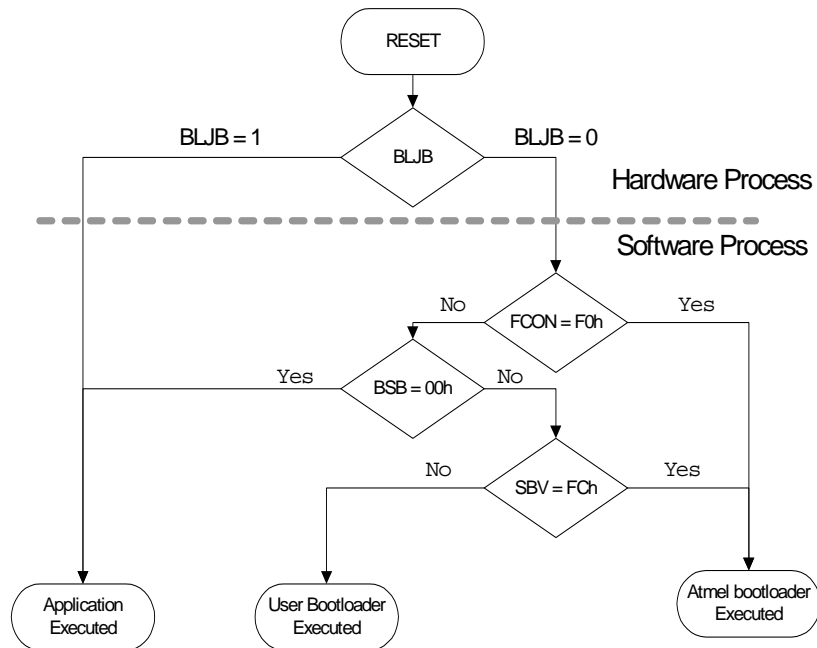
A 'Special Sync' can be used with 'FLIP' software.

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.

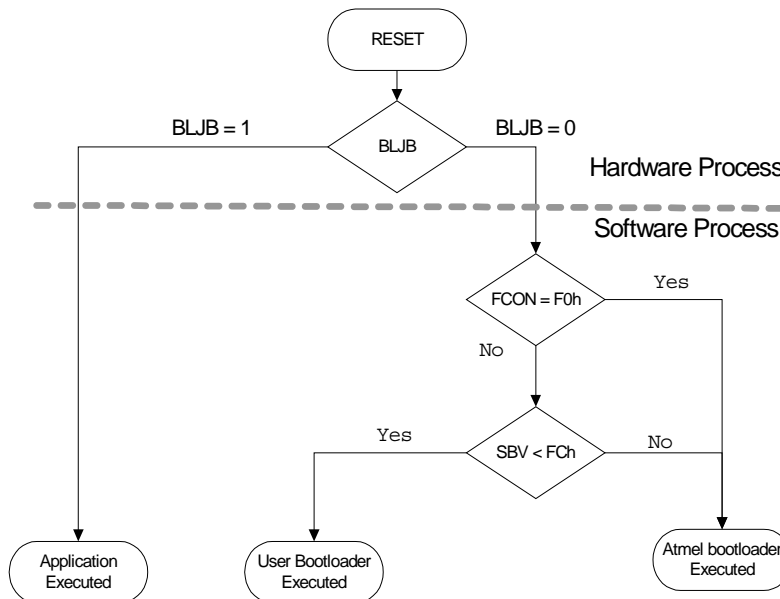
### 4. Boot Process Compatibility

There are some differences between Boot process of bootloader 1.2 and newer versions.

Version 1.2:



Version 1.4:



### Workaround

Use the fuse bit BLJB to start the application on both versions.

**5. 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.

## Active CAN Bootloader Errata List

- The CAN is Not Stopped
- Watchdog and Flash API Starting the Bootloader Execution
- Flash api “\_\_api\_wr\_code\_page” with 0 data in length parameter field

## CAN Bootloader Errata History

| Version Number | Errata List |
|----------------|-------------|
| 1.0.4          | 1, 2, 3     |

## CAN Bootloader Errata Description

### 1. The CAN is not stopped

When the bootloader receives the command “Start Application” (LJMP 0), the CAN is not stopped.

#### Workaround

The application must have in its setup function a reset of CAN macro.

```
mov CANGCON, #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. 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 Headquarters**

### **Corporate Headquarters**

2325 Orchard Parkway  
San Jose, CA 95131  
TEL 1(408) 441-0311  
FAX 1(408) 487-2600

### **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 Tsimhatsui  
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  
TEL 1(408) 441-0311  
FAX 1(408) 436-4314

### **Microcontrollers**

2325 Orchard Parkway  
San Jose, CA 95131  
TEL 1(408) 441-0311  
FAX 1(408) 436-4314

La Chantrerie  
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  
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  
TEL 1(719) 576-3300  
FAX 1(719) 540-1759

### **Biometrics/Imaging/Hi-Rel MPU/ High Speed Converters/RF Data- com**

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

---

### **e-mail**

[literature@atmel.com](mailto:literature@atmel.com)

### **Web Site**

<http://www.atmel.com>

### **© Atmel Corporation 2002.**

Atmel Corporation makes no warranty for the use of its products, other than those expressly contained in the Company's standard warranty which is detailed in Atmel's Terms and Conditions located on the Company's web site. The Company assumes no responsibility for any errors which may appear in this document, reserves the right to change devices or specifications detailed herein at any time without notice, and does not make any commitment to update the information contained herein. No licenses to patents or other intellectual property of Atmel are granted by the Company in connection with the sale of Atmel products, expressly or by implication. Atmel's products are not authorized for use as critical components in life support devices or systems.

ATMEL® is a registered trademark of Atmel.

Other terms and product names may be the trademarks of others.



Printed on recycled paper.