Active T89C51CC02 Errata List

- **Timer 2 (Baud Rate Generator Mode) – Long Start Time**
- **UART – RB8 Lost with JBC on SCON Register**
- **CAN – CANCONCH Harmless Corruption**
- **ADC – Interrupt During Idle Conversion**
- **Flash/EEPROM – First Read After Load Disturbed**

T89C51CC02 Errata History

Lot Number	Errata List
A00470	1, 2, 3, 4, 5, 6, 7, 8, 9
A01013 and above	**5, 6, 7, 8, 9**

T89C51CC02 Errata Description

1. EEPROM – EEPROM Data Cannot be Accessed from the Boot Area (FM1)

EEPROM Data cannot be read or written from the boot area (FM1).

Workaround

None.

2. XRAM – P3.7 and P3.6 Signals are Generated

When an overflow access is detected on the XRAM during a Movx instruction, negative pulses on the P3.7 and P3.6 signals are generated.

Workaround

None.

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

When CPU is in X2 Mode and Timer 1 or Timer 0 in X1 Mode (CKCON = 0x7F), IEx flag is not cleared by hardware after a service interrupt. In this case, the CPU executes the ISR a second time.

Workaround

The work around is to clear IEx bit during the Interrupt subroutine.

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

4. Timer 2 (Baud Rate Generator Mode) – No IT When TF2 is Set by Software

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

Workaround

None.

CAN Microcontrollers

T89C51CC02
T89C51CC02UA
T89C51CC02CA

Errata Sheet

Rev. 4160B–CAN–12/02

5. 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

In the software add an initialization of TH2 and TL2, with the value of RCAP2H and RCAP2L.

6. 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.

7. CAN – CANCONCH Harmless Corruption

When a stuff error occurs during a CAN frame transmission on DPRAM write access, the CONCH1, CONCH0 bits in CANCONCH are corrupted. This corruption has no effect on the correct behavior of the Transmit channel.

Workaround

No workaround required, re-writing CANCONCH to start a new message takes care of the corruption.

8. 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 re-setable 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 resetable 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.

9. 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

Either:

- 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
```

or :

- Use the Flash API which load the column latch from bootloader (refer to datasheet boot loader to see if this flash API exist).

Active UART Bootloader Errata List

- **Timer 2 and UART Are Not De-activated**
- **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
1.2	1, 2, 3, 4

UART Bootloader Errata Description

1. Timer 2 and UART Are Not De-activated

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

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 using the watchdog starts the bootloader by calling the Flash APIs __api_start_bootloader or __api_start_isp, when the watchdog overflows it will restart the application.

Workaround

Before calling the Flash APIs __api_start_bootloader or __api_start_isp, the fuse bit BLJB must be set.

The workaround is to call the Flash API __api_set_BLJB to wait the watchdog overflows to start in the bootloader.

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 checkes 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 equals 0 then 255 data are written in Flash.

Workaround

Test the bootloader to check the size of the value nb_data.

If nb_data = 0 returns in the application without launching a programing sequence, or check in the Flash API.

Active CAN Bootloader Errata List

- **The CAN is Not De-activated**
- **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
1.0.2	1, 2, 3

CAN Bootloader Errata Description

1. The CAN is Not De-activated

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

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 using the watchdog starts the bootloader by calling the Flash APIs __api_start_bootloader or __api_start_isp, when the watchdog overflows it will restart the application.

Workaround

Before calling the Flash APIs __api_start_bootloader or __api_start_isp, the fuse bit BLJB must be set.

The workaround is to call the Flash API __api_set_BLJB to wait the watchdog overflows to start in the bootloader.

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

Make a test in the bootloader to check the size of the value nb_data.

If nb_data = 0 return in the application with out launch programing sequence.

Or check in the flash api.

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