

Active Errata List

- Flash/EEPROM – First Read after Write 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
- CAN – CANCONCH Harmless Corruption
- Flash/EEPROM – First Read after Load Disturbed
- CAN – Sporadic Errors

Errata History

Lot Number	Errata List
A00151	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13
A00369	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13
A00367, A00368, A00396 to A00529	1, 3, 5, 6, 7, 8, 9, 10, 12, 13
A00510, all lots from A00588	1, 7, 8, 9, 10, 11, 12, 13

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 Timer 1 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
....
```



CAN Microcontrollers

T89C51CC01
T89C51CC01UA
T89C51CC01CA

Errata Sheet



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

When the stuff error occurs (same condition than the errata 6), 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 this corruption.

12. Flash/EEPROM – First Read after Load Disturbed

In the 'In-Application Programming' mode from the Flash, if the User software application loads the Column Latch Area prior to calling 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
```

13. CAN – Sporadic Errors

When $BRP = 0$ or when $BRP > 0$ and $SMP = 0$, the CAN controller may desynchronize and send one error frame to ask for the retransmission of the incoming frame, even though it had no error.

This is likely to occur with $BRP = 0$ or after long inter frame periods without synchronization (low bus load). The CAN macro can still properly synchronize on frames following the error.

Workaround

Setting BRP greater than 0 in CANBT1 and SMP equals 1 in CANBT3 allows re-synchronization with the majority vote, and thus fixes the issue.

The sampling point might have to be slightly advanced for the majority vote to take place within the bit. Therefore, at maximum speed of 1Mbit/s, the sampling point should be at less than 80% (e.g. 75%) for $XTAL = 16$ MHz or less than 85% (e.g. 80%) for $XTAL = 20$ MHz.

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 overflows 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 in 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 in 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

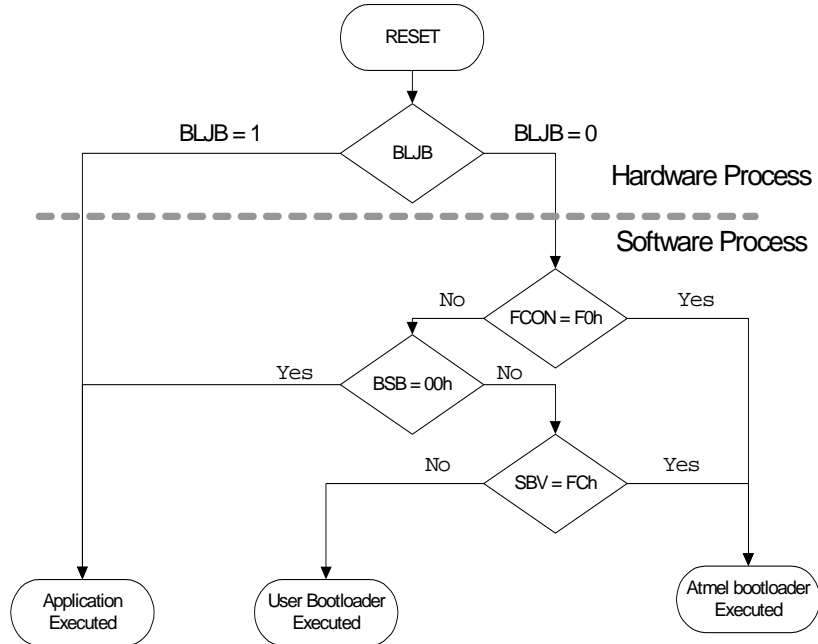
A 'Special Sync' can be used with 'FLIP' software.

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

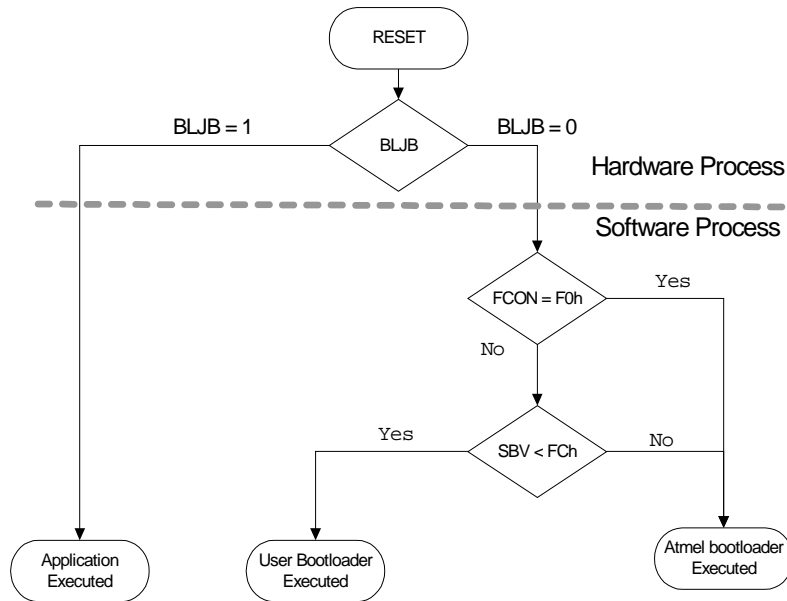
4. Boot Process Compatibility

There are some differences between Boot process of bootloader 1.2 and newer versions (see below).

Version 1.2:



Version 1.4:



Workaround

Use the fuse bit BLJB to start the application in 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 written in Flash.

Workaround

Include a test on '`nb_data`' before executing `__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' equals 0 then 255 data are written in Flash.

Workaround

Include a test on 'nb_data' before executing ' __api_wr_code_page ' routine.



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