Errata

- **Releasing Reset Condition without Clock**
- **Clearing Lockbits at High V_{CC} or Temperature**
- **Wrong Latching of FSTRT Fuse**
- **Wrong Clearing of XTRF in MCUSR**
- **Reset during EEPROM Write**
- **Serial Programming at Voltages below 3.0 Volts**

6. Releasing Reset Condition without Clock

If an external reset or a watchdog reset occurs while the clock is stopped and the reset is released before the clock is restarted, the internal reset will time out after the start-up delay, which is independent of the external clock. If no external clock pulses are present in the period when internal reset is active, the reset does correctly causes tri-stating of the I/O while the reset is held. However, if the internal reset is relesed before the clock starts running, the part does not clears its I/O registers, nor sets PC to 0x00. Here, stopping the clock refers to gating the external clock input. Power-down mode does not have this issue.

Problem Fix/Workaround

Make sure the clock is running whenever an external reset can be expected. If the watchdog is used, never stop an external clock.

5. Clearing Lockbits at High V_{CC} or Temperature

If the temperature is to high, and/or the programming voltage is to high, the clearing of lockbits might fail.

Problem Fix/Workaround

Keep V_{CC} below 5.0 volts at room temperature when performing a chip erase.

4. Wrong Latching of FSTRT Fuse

If V_{CC} goes below GND and then up to the operating voltage, the FSTRT fuse can be read as unprogrammed even if it is programmed. The result of this is that the device uses the long start-up period instead of the short.

Problem Fix/Workaround

Avoid that V_{CC} goes below GND.

If the device has been started with the FSTRT fuse read wrong, it can be restarted in the correct mode again by taking V_{CC} up to the operating voltage, then below 0.5V and then up again.

Use Rev. G or later.

3. Wrong Clearing of XTRF in MCUSR

The XTRF flag in MCUSR will be cleared when clearing the PORF flag. The flag does not get cleared by writing a “0” to it.

Problem Fix/Workaround

Finish the test of both flags before clearing any of them. Clear both flags simultaneously by writing “0” to both PORF and XTRF in MCUCR.

8-bit AVR® Microcontroller with 2K Bytes of In-System Reprogrammable Flash

AT90S/LS2323 Rev. F Errata Sheet

Rev. 1192D–09/01

2. Reset during EEPROM Write

If reset is activated during EEPROM write, the result is not what should be expected. The EEPROM write cycle completes as normal, but the address registers are reset to “0”. The result is that both the address written and address 0 in the EEPROM can be corrupted.

Problem Fix/Workaround

Avoid using address 0 for storage unless you can guarantee that you will not get a reset during EEPROM write.

1. Serial Programming at Voltage below 3.0 Volts

At voltages below 3.0 volts, serial programming might fail.

Problem Fix/Workaround

Keep V_{CC} at 3.0 volts or higher during In-System Programming.

Atmel Headquarters

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

Europe
Atmel SarL
Route des Arsenaux 41
Casa Postale 80
CH-1705 Fribourg
Switzerland
TEL (41) 26-426-5555
FAX (41) 26-426-5500

Asia
Atmel Asia, Ltd.
Room 1219
Chinachem Golden Plaza
77 Mody Road Tsimhatsui
East Kowloon
Hong Kong
TEL (852) 2721-9778
FAX (852) 2722-1369

Japan
Atmel Japan K.K.
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 Product Operations

Atmel Colorado Springs
1150 E. Cheyenne Mtn. Blvd.
Colorado Springs, CO 80906
TEL (719) 576-3300
FAX (719) 540-1759

Atmel Grenoble
Avenue de Rochepleine
BP 123
38521 Saint-Egreve Cedex, France
TEL (33) 4-7658-3000
FAX (33) 4-7658-3480

Atmel Heilbronn
Theresienstrasse 2
POB 3535
D-74025 Heilbronn, Germany
TEL (49) 71 31 67 25 94
FAX (49) 71 31 67 24 23

Atmel Nantes
La Chantrerie
BP 70602
44306 Nantes Cedex 3, France
TEL (33) 0 2 40 18 18 18
FAX (33) 0 2 40 18 19 60

Atmel Rousset
Zone Industrielle
13106 Rousset Cedex, France
TEL (33) 4-4253-6000
FAX (33) 4-4253-6001

Atmel Smart Card ICs
Scottish Enterprise Technology Park
East Kilbride, Scotland G75 0QR
TEL (44) 1355-357-000
FAX (44) 1355-242-743

e-mail
literature@atmel.com

Web Site
http://www.atmel.com

BBS
1-(408) 436-4309

1192D–09/01/xM