



February 4, 2009

C8051T610/1/2/3/4/5/6/7 Revision C Errata

Errata Status Summary

Errata #	Title	Impact	Status	
			Affected Revisions	Fixed Revision
1	V _{PP} Programming Voltage Change	Information	Revisions A,B,C	Revision C

Impact Definition: Each erratum is marked with an impact, as defined below:

- Minor—Workaround exists.
- Major—Errata that do not conform to the data sheet or standard.
- Information—The device behavior is not ideal but acceptable. Typically, the data sheet will be changed to match the device behavior.

Errata Details

1. **Description:** A change is being made to the specified programming voltage (V_{PP}) for the device, in order to improve the effectiveness of programming operations. At higher V_{PP} voltages, there is a possibility that programming a byte in the EPROM memory will also unintentionally program other bytes in the memory. To eliminate the possibility of this happening, the specifications for minimum, typical, and maximum V_{PP} voltage are all being reduced by 0.5 V. We are implementing this change in two stages.

Stage 1) For devices with date code prior to 0935, the maximum V_{PP} voltage specification is being reduced from 6.75 V to 6.5 V and the typical specification for this parameter is being reduced from 6.5 V to 6.375. The minimum specification of 6.25 V is not changed for these devices.

Stage 2) For devices with date code 0935 and later, the maximum V_{PP} voltage is being reduced to 6.25 V minimum V_{PP} voltage is being reduced to 5.75 V, the typical V_{PP} voltage is being reduced to 6.0 V, and the minimum V_{PP} voltage is being reduced to 5.75 V.

Impact: A small percentage of devices programmed with V_{PP} voltages above the specifications may exhibit programming failures. These will be easily detectable by performing a read-verify operation of the EPROM contents. It is very important that the minimum V_{PP} specification is observed for all devices. Devices are screened for EPROM data retention down to the specified levels (6.25 V for date codes before 0935, and 5.75 V for date codes 0935 and later). EPROM data retention cannot be guaranteed if devices are programmed with lower voltages.

Workaround: It is recommended that any existing programming hardware using the previous V_{PP} specification be modified to apply between 6.25 V and 6.5 V to V_{PP} during programming operations. Devices with date code 0935 and later can safely be programmed at the lower V_{PP} specification.