

Running Schematics 1

Migrating from AT89C2051/C4051 to AT89S2051/S4051

New Features

- 8-bit Pulse-width Modulation
- Enhanced UART Serial Port with Framing Error Detection and Automatic Address Recognition
- On-chip Analog Comparator with Selectable Interrupt
- Brown-out Reset
- Internal Power-on Reset
- Interrupt Recovery from Power-down Mode
- Programmable and Fuseable x2 Clock Option
- Four-level Enhanced Interrupt Controller
- Power-off Flag
- Flexible Programming (Byte and Page Mode)
- User Serviceable Signature Page (32 Bytes)

1. Introduction

The purpose of this application note is to help users convert existing designs from AT89C2051/C4051 to AT89S2051/S4051. This application note describes AT89S2051/S4051 memory sizes, features, and SFR mapping register differences. More detailed information can be found in the AT89S2051/S4051 datasheet.



**Flash
Microcontrollers**

**Application
Note**

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- <http://www.edaboard.com/thread106381.html>

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17. UART

The UART in the AT89S2051/S4051 operates the same way as the UART in the **AT89C**2051/C4051. For more detailed information on the UART operation, please click on the document link below:

http://www.atmel.com/dyn/resources/prod_documents/DOC4316.PDF

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The device is manufactured using Atmel's high-density nonvolatile memory technology and is compatible with the industry-standard MCS-51 instruction set. By combining a versatile 8-bit CPU with Flash on a monolithic chip, the Atmel AT89S2051/S4051 is a powerful microcontroller which provides a highly-flexible and cost-effective solution to many embedded control applications. Moreover, the AT89S2051/S4051 is designed to be function compatible with the AT89C2051/C4051 devices, respectively.

The AT89S2051/S4051 provides the following standard features: 2K/4K bytes of Flash, 256 bytes of RAM, 15 I/O lines, two 16-bit timer/counters, a six-vector, four-level interrupt architecture, a full duplex enhanced serial port, a precision analog comparator, on-chip and clock circuitry. Hardware support for PWM with 8-bit resolution and 8-bit prescaler is available by reconfiguring the two on-chip timer/counters. In