Interfacing AT25XXX Serial EEPROMs with Atmel AT89LP Microcontrollers

Features

- **Example Read/Write Routines for Accessing Atmel AT25XXX Serial EEPROMs**
- **Assembly Source Provided**
- **Applicable to any AT89LP Microcontroller**

1. Serial Peripheral Interface

Serial memory devices offer significant advantages over parallel devices in applications where lower data transfer rates are acceptable. In addition to requiring less board space, serial devices allow microcontroller I/O pins to be conserved. This is especially valuable when adding external memory to low pin count microcontrollers such as the Atmel® AT89LP2051 and AT89LP4052.

This application note presents a suite of software routines which may be incorporated into a user's application to allow AT89LP microcontrollers to read from and write to AT25XXX serial EEPROMs. All six AT25XXX device operations are supported: read memory, write memory, read status, write status, (set write protection levels), write enable and write disable. Routines are also provided to read from and write to memory utilizing the page mode of the AT25XXX. The software supports both 3-wire and 4-wire configurations and meets all AT25XXX family timing requirements when run on an AT89LP microcontroller with a 12 MHz clock.

2. Hardware

The AT25XXX may be connected to the AT89LP microcontroller in either a 3-wire (Figure 3-1) or 4-wire (Figure 3-2) configuration. In the 3-wire configuration, the EEPROM serial data in (SI) and serial data out (SO) pins are both connected to the same microcontroller I/O pin, thereby saving a pin. This is possible because the microcontroller I/O pins can be dynamically reprogrammed as input or output.

3. Software

Software for this application note may be downloaded from the Atmel Web Site. Consult the comment block at the beginning of the source code file for detailed information on features and operation.

8051 Flash Microcontroller

Application Note

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Figure 3-1. 3-Wire Configuration

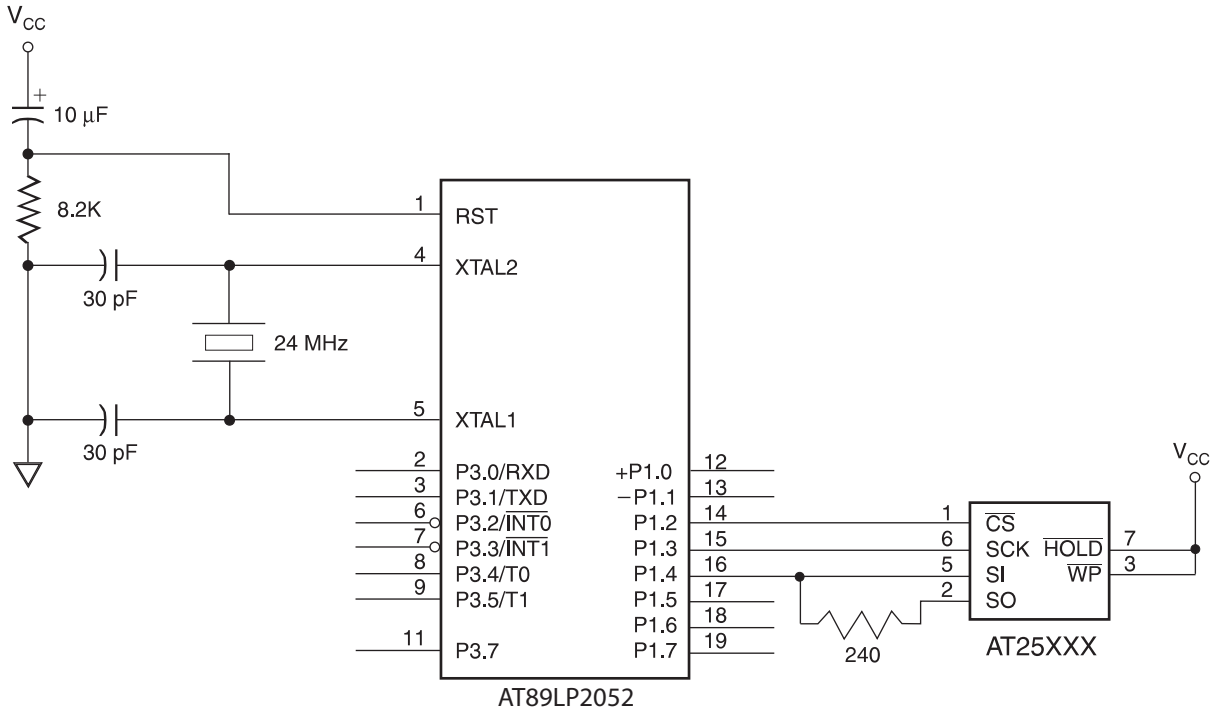
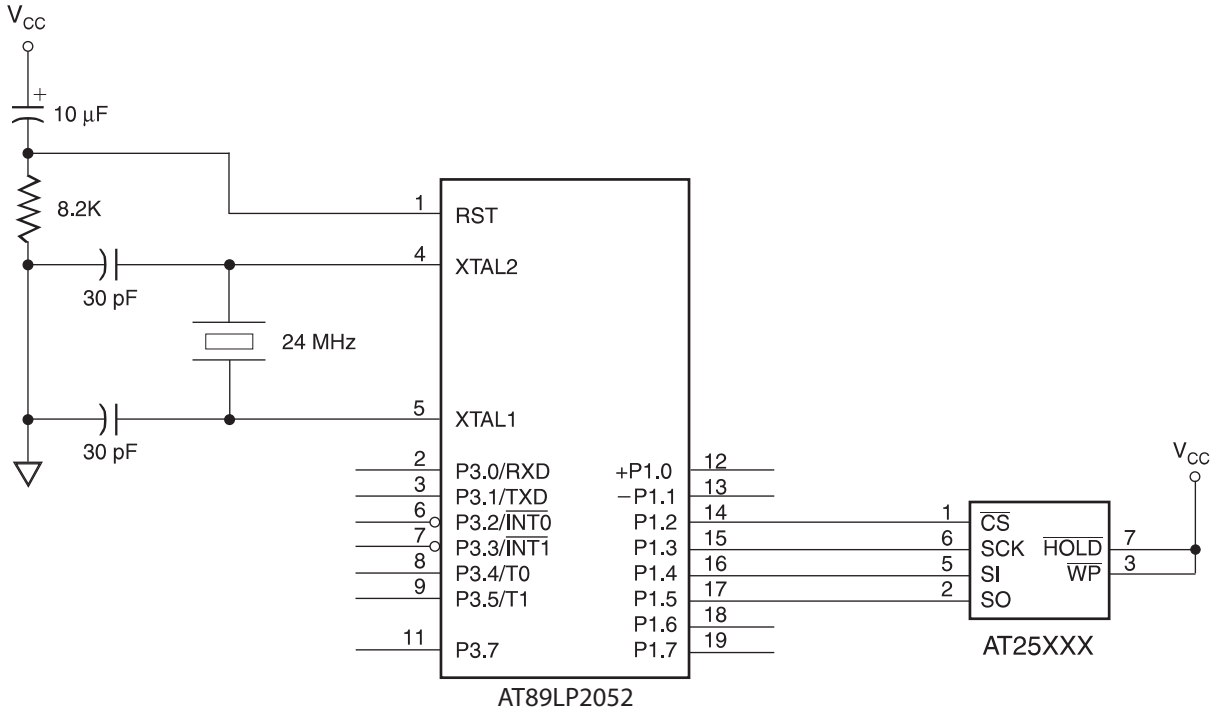


Figure 3-2. 4-Wire Configuration



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