App Note 3506: Interfacing a DS3231 with an 8051-Type Microcontroller

This application note provides example hardware and software for interfacing the DS3231 with an 8051-type microcontroller.
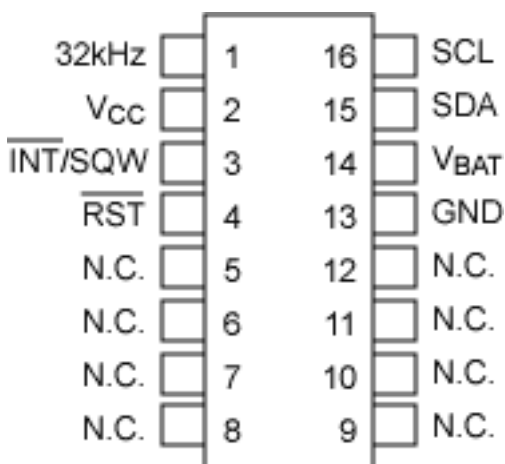

Figure 1. DS3231 Pin Assignment

Description

This application note demonstrates how to interface a DS3231 to an 8051-type microcontroller and provides example code showing basic interface routines. The microcontroller used in this example is the DS2250, and the software is written in C.
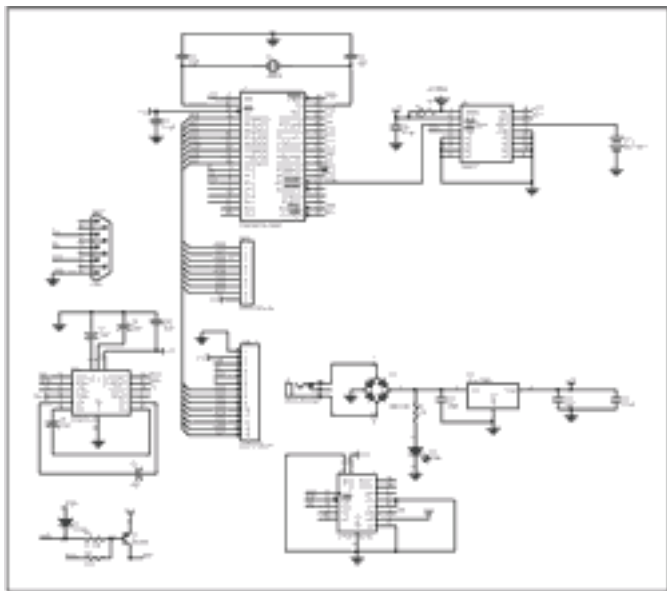
Operation

The program uses two general-purpose port pins on the microcontroller to operate as a master on the I^2C* bus. The DS3231 operates as a slave device on the same bus. The program demonstrates setting and reading the time and date, as well as reading and displaying temperature data. The program displays the time, date, and temperature information on an LCD display, which utilizes a standard HD44780 controller.

Pin assignment and a schematic of the DS3231 are shown in Figures 1 and 2, respectively. The software is shown in Figure 3.

* Purchase of I^2C components from Maxim Integrated Products, Inc., or one of its sublicensed Associate Companies, conveys a license under the Philips I^2C Patent Rights to use these components in an I^2C system, provided that the system conforms to the I^2C Standard

Specification defined by Philips.

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Figure 2. Schematic of the DS3231

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Figure 3. Example Software

More Information

DS3231: [QuickView](#) -- [Full (PDF) Data Sheet](#)