Keywords: DS1678, event, recorder, event recorder

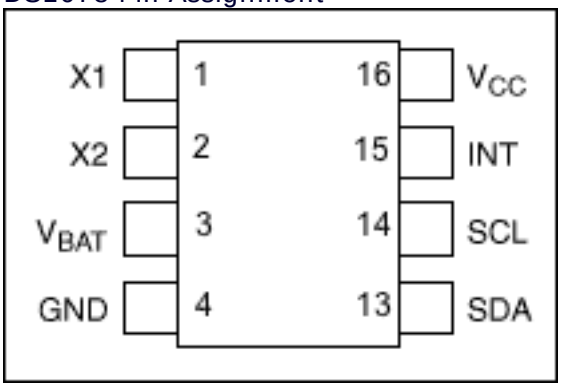
Nov 16, 2005

APPLICATION NOTE 3643

How to Use the DS1678 Real-Time Event Recorder

Abstract: This note demonstrates an application using the DS1678 real-time event recorder. The software example includes basic operating routines. A schematic of the application circuit is included.

DS1678 Pin Assignment



Description

This application note demonstrates how to use the DS1678 real-time event recorder which logs events—level transitions on the **INT** input pin—into a 1024-word datalog memory array. The first event is recorded as a time stamp; subsequent events are recorded as elapsed time from the previous event. The time stamp and 1024-word datalog memory accommodate up to 1025 recorded events.

This example code includes functions for initiating a datalogging "mission." The user-selectable options are event resolution, trigger selection, and rollover (handling missions of more than 1025 events). The software also includes routines for ending a mission, for displaying the event datalog information, and for writing and reading the user RAM.

Operation

The program uses two general-purpose port pins (GPIOs) on a microcontroller to communicate with the DS1678 through the DS1678's I²C serial interface. An additional port pin is used to toggle the DS1678's **INT** input to drive events. In a typical application, the **INT** input would be connected to circuitry that conditions the signals from the event source, e.g., a thermostat in a HVAC system. This connection allows the DS1678 to record, for example, the start time and duration of each cooling or heating cycle.

This example uses an 8051-compatible microcontroller, the DS2250. User inputs and data outputs from the program are passed through an RS-232 interface from a terminal emulator program on a PC to a UART on the microcontroller. The Microcontroller Tool Kit software utility can be used to program the DS2250 microcontroller.

The software is shown in **Figure 1**. A schematic of the circuit is shown in **Figure 2**.

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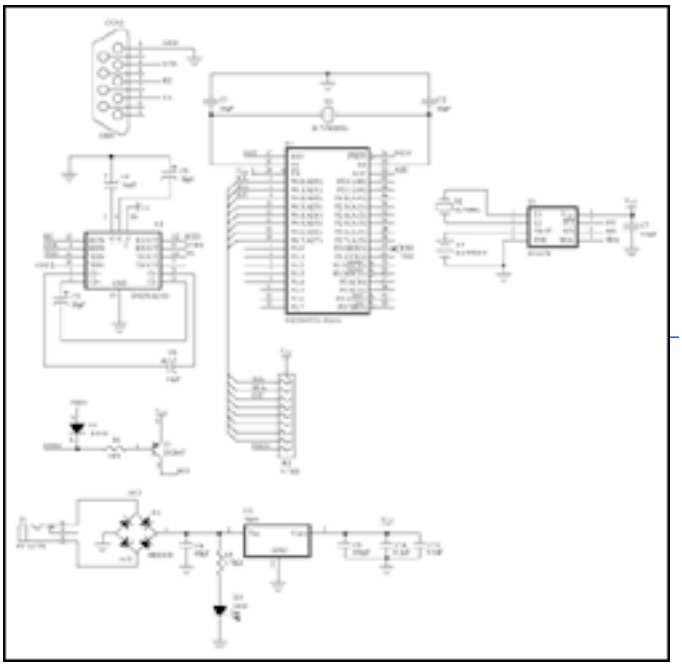
Figure 1. Program listing for interfacing a microcontroller to the DS1678.



For Larger Image

Figure 2. Schematic for the DS1678 demonstration board.

Application Note 3643: www.maxim-ic.com/an3643

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