

AN10770

P89LPC9351 readable RTC

Rev. 01 — 2 December 2008

Application note

Document information

Info	Content
Keywords	RTC, LPC900, C51
Abstract	This application note describes the Readable RTC, a P89LPC9351 enhancement over the P89LPC935, as well as demo code.

Revision history

Rev	Date	Description
01	20081202	Initial version.

Contact information

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1. Introduction

The P89LPC9351 incorporates two new SFRs for RTC functionality, they are:

RTCDATH — Real-time clock data register high.

RTCDATL — Real-time Clock data register low.

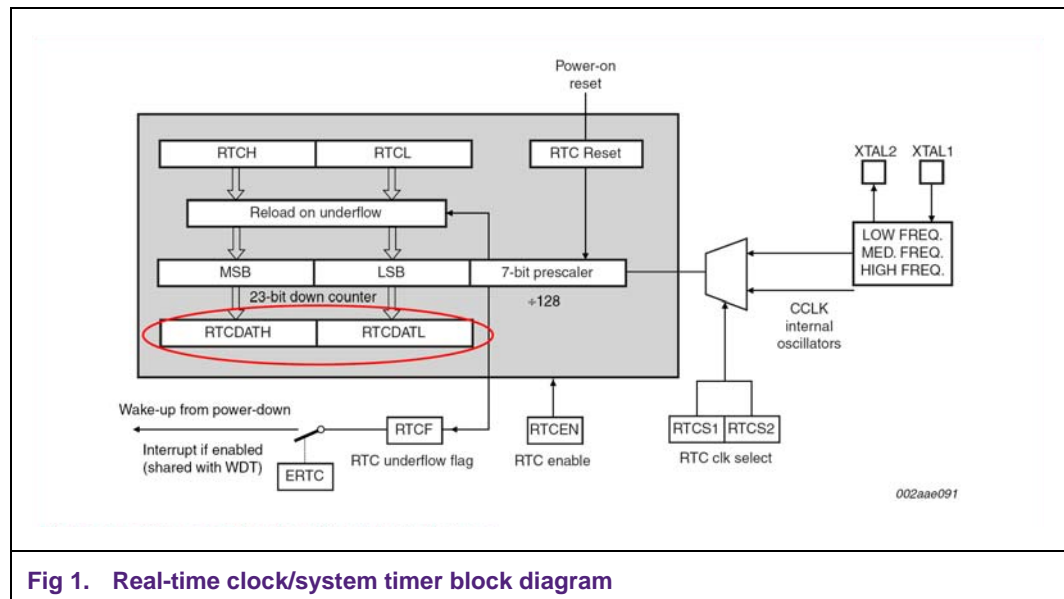


Fig 1. Real-time clock/system timer block diagram

With these two SFRs, a user can read the 16-bit counter portion of the RTC anytime during the RTC count. This extends the RTC functionality, making it easier for user to process more events with the RTC.

In this demo, the P89LPC9351 will set the RTC to 1s intervals, and output time information to PC Hyper Terminal via the UART. If using the LPC935, the user can only get the “second” information each time a second lapse. However using the P89LPC9351, user can not only get the “second” information, but also can do more things by utilizing the RTC count access. (In this demo, we output information every half second during 1s counting).

2. RTC Demo

2.1 Demo introduction

This demo will compare the P89LPC9351 RTC with the LPC935 RTC. The demo source code is provided with this AN.

The basic demo process is the following:

1. Set RTC interrupt interval to 1s, cclk and RTC clock both using internal RC.
2. When a RTC interrupt occurs, send “second” information via UART to the PC Hyper Terminal. (This function is same on the LPC935)
3. During RTC counting, continue reading **RTCDATH** and **RTCDATL**, when count reaches the mid value (0.5s), send out “Half Second” information via UART to Hyper Terminal.(This function is only supported by the P89LPC9351)

2.2 Demo setup

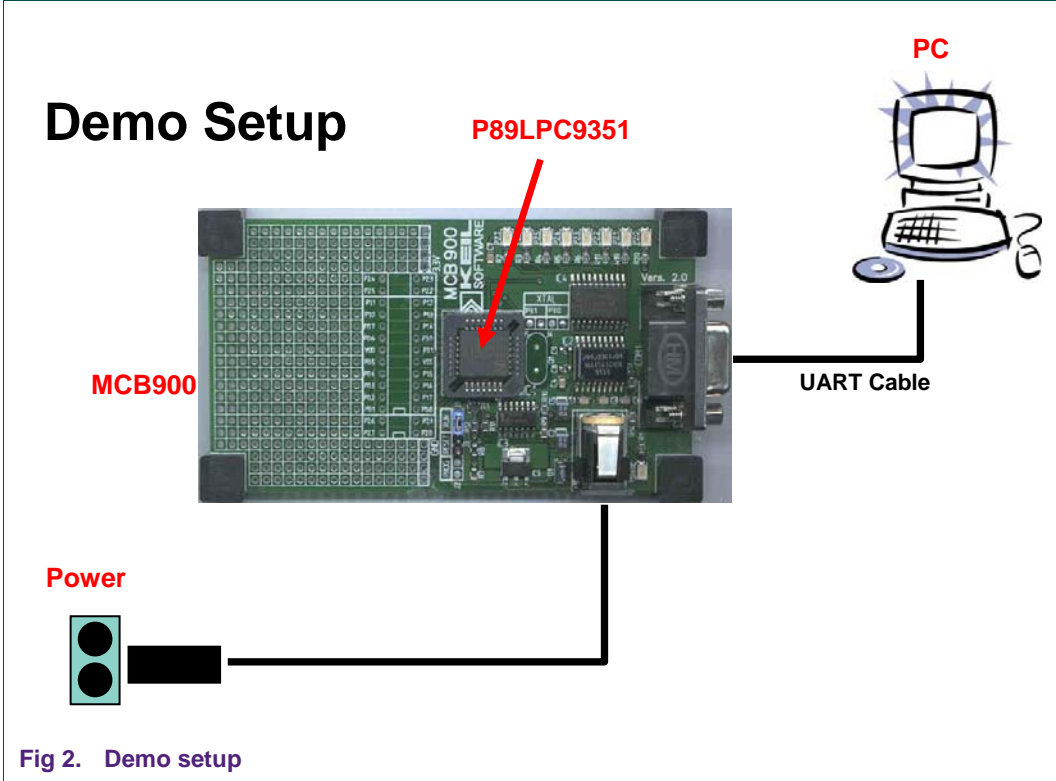


Fig 2. Demo setup

2.3 Terminal Output information using LPC935 – without readable RTC

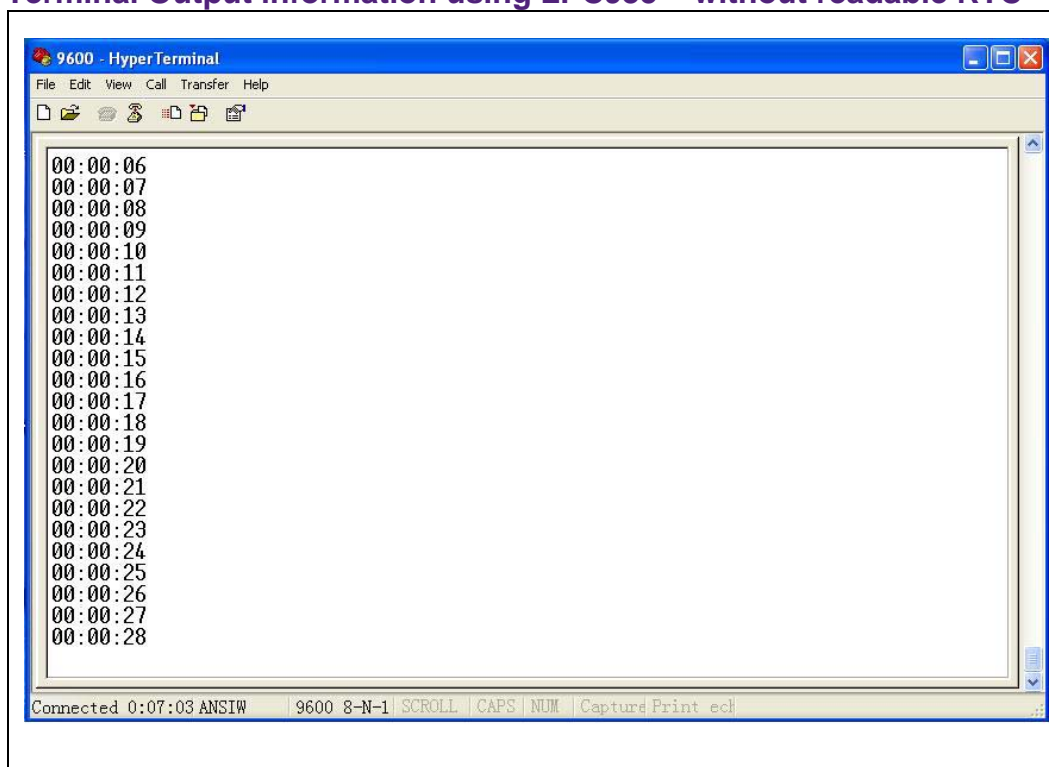


Fig 3. Print information without readable RTC

2.4 Terminal output information using P89LPC9351 – readable RTC

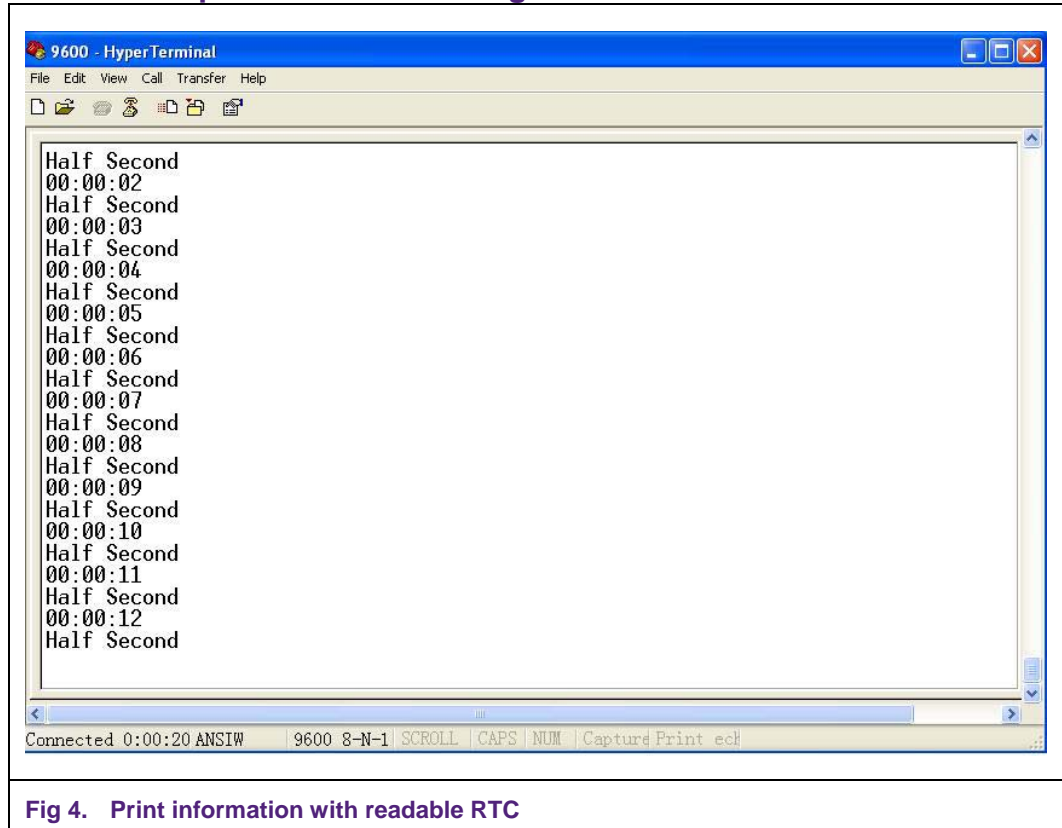


Fig 4. Print information with readable RTC

3. Reference

- [1] P89LPC9351 User manual (UM10308) – Rev. 01

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