Real Time Clock SysTick Example
1.0

Features

- Displays RTC time
- Sends Date and Time over UART
- DST feature
- Periodic interrupt generation (0.1-second) by Systick timer

General Description

This example project demonstrates the basic operation of RTC: set/get the current Date/Time, use the DST feature. The project sends Date and Time over UART, shows users how they can configure the Systick timer to generate a 0.1-second interrupt and map RTC update API to Systick ISR.

Development kit configuration

This example project is designed to run on the CY8CKIT-042 kit from Cypress Semiconductor. A description of the kit, along with more example programs and ordering information, can be found at http://www.cypress.com/go/cy8ckit-042.

The project requires configuration settings changes to run on other kits from Cypress Semiconductor. Table 1 is the list of the supported kits. To switch from CY8CKIT-042 to any other kit, change the project's device with the help of Device Selector called from the project's context menu.

Table 1. Development Kits vs Parts

Development Kit	Device
CY8CKIT-042	CY8C4245AXI-483
CY8CKIT-040	CY8C4014LQI-422
CY8CKIT-042-BLE	CY8C4247LQI-BL483
CY8CKIT-044	CY8C4247AZI-M485
CY8CKIT-046	CY8C4248BZI-L489
CY8CKIT-041	CY8C4045AZI-S413 / CY8C4146AZI-S433
CY8CKIT-048	CY8C4445AZI-483

The pin assignments for the supported kits are in Table 2.

Table 2. Pin Assignment

Pin Name	Development Kit						
	CY8CKIT-042	CY8CKIT-040	CY8CKIT-042 BLE	CY8CKIT-044	CY8CKIT-046	CY8CKIT-041	CY8CKIT-048
\UART:tx\	P0[5]*	P0[5]*	P1[5]	P7[1]	P3[1]	P0[5]	P3[1]

* Connect P0[5] (\UART:tx\) to J8 pin 9 (PSoC 5LP P12[6]) for CY8CKIT-040, CY8CKIT-042.

The following steps should be performed to observe the project operation:

1. The kit board should be configured to the default switch and jumper settings.
2. Connect the Pioneer kit board to a PC using a USB cable.
3. Launch any of the RS-232 terminal applications on the PC and configure it to use the 'KitProg USB-UART' port with the speed of 115200bps.
4. Build the project and program the hex file into the target device.

Project Configuration

The example project consists of the RTC and UART components. The Systick timer is a part of the cy_boot component and it is used in the project to generate a periodic interrupt (0.1-second).

The UART component is used to send Date and Time after a startup on HyperTerminal.

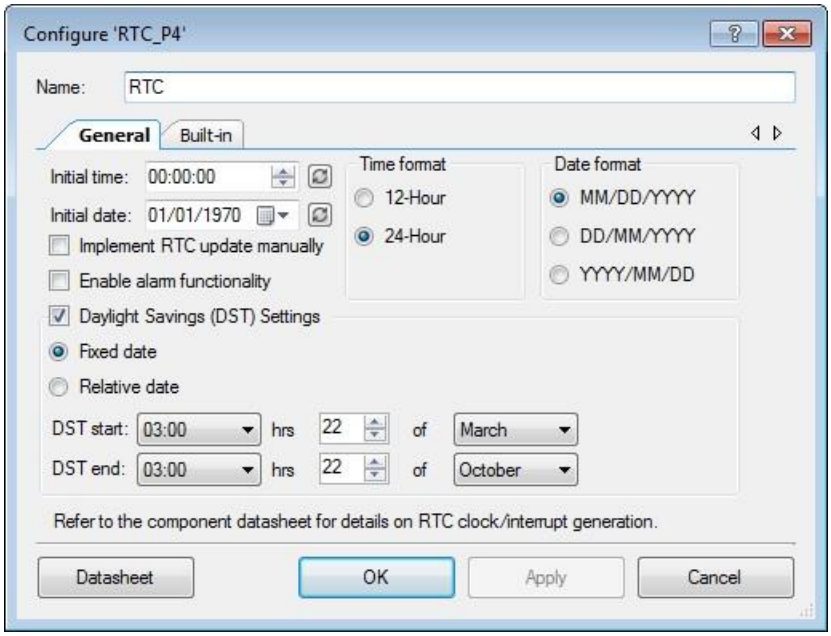
Project Description

At the beginning of the main function, the Systick timer starts and initializes interrupt generation every 100 ms and sets the current Date and Time using API. After Data and Time from RTC is obtained, print them to UART in the cycle. Update RTC in the Systick interrupt handler.

Expected Results

Program the device with the project and observe that the current Date and Time "02:59:50 | 03/22/2014" are started on PC Host. Daylight Savings Functionality is configured in GUI (Figure 1) and changes the time to 04:00:00 at 03:00:00.

Figure 1. RTC Component Configuration



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