

UNC Charlotte, ECGR 4090/6185/8185, Spring 2008: Lab 7

MicroC/OS-II on Renesas.

Learning Objectives

This lab will have students increase their experience with uC/OS-II.

General Information

The general steps for this lab are:

1. Generate a new project for the Renesas Board. Name your new project Lab7.
2. Open and edit your main.c file to perform the lab functions.
3. Program the lab. Don't forget the necessary include files to get the correct functionality.
4. Compile the code into a .mot file, and load onto the board.
5. Test the program and repeat steps 2, 3, and 4 until the program works as required.
6. Write your lab report.
7. Demonstrate for the professor and turn in your report and files.

Prelab Activity

Read the main.c file in the test folder to gain a better understanding of the MicroC/OS II port for the Renesas board. You are allowed (and encouraged) to modify this file for the lab.

Laboratory Assignments - Steps Required:

This port is a modified port of Hubert Kronenberg for M16C family to run on the SKP16C62P.

Tools needed to complete this project:

1. NC30 compiler version 5.3 release 2- a trial version can be downloaded from http://download.sg.renesas.com/evaluation_software/compilers/m16c/
2. MicroC/OS-II source files- all source files in the companion CD-ROM with MicroC/OS-II book
3. Flash over USB (version 2.4)-setup is in the companion CD of SKP16C62P kit.
4. The project code

Steps needed to complete this project:

1. Downloading ports from <http://www.ucos-ii.com/>
2. Modifying the code.
3. Copying the OS (version 2.52) files to folder "V270".
4. Making necessary changes to the path in uCOS_II.C file.
5. Installing NC30 Compiler to C:\renesas\NC30WA\
6. Making necessary changes in mk.bat and set it for the default path.
7. Executing the mk.bat.
8. Loading main.mot on microcontroller using flash over USB(version 2.4)

Requirements

Req. 1 – The code generated is written in C for the MSV30626-SKP

Req. 2 – The code is well commented and easy to follow

Req. 3 – Your lab report should include the final build output from the builder

Req. 4 – uC/OS-II will be running on the board.

- Req. 5 – Create a task to toggle the red LED every 1.0 seconds
Req. 6 – Create a task to toggle the green LED every 10.0 seconds.
Req. 7– In the main function, sample the thermistor and store in a global variable protected by a semaphore.
Req. 8 – Create a task to display the current temperature reading on the LCD every five seconds.

Lab Report

Include in your lab report observations and procedure like the following:

The general learning objectives of this lab were . . .

Pre-lab question answers

The general steps needed to complete this lab were . . .

Some detailed steps to complete this lab were

1. *Step one*
2. *Step two*
3. *. . . .*

Code generated for this lab...

Some important observations while completing/testing this lab were . . .

In this lab we learned

Send the code the .map file, and the report to Sami via email.