ECGR3/5/6090, Fall 2003: Lab 2

Testing the MSV30262-SKP Board & Building a Simple MSV30262-SKP Program

Learning Objectives

This lab will help you demonstrate how to build a project and load the executable onto the MDECE30262 board.

General Information

The general steps for this lab are:

1. Test your board with the pre-loaded test program. If is not pre-loaded, download the program.
2. Download the MSV30262-SKP Lab 2 Program to your file space.
3. Using TM generate a new project.
4. Build the project and load onto your board. Run the program and observe the operation.
5. Demonstrate for a TA and turn in a lab report.

Prelab Activity

You may use the PCs in Smith 347 or your own PC to do this lab experiment. The machines in Smith 347 already have the software tools loaded. If you want to work on lab assignments on your own PC, then load the tools on your PC to perform this exercise. To load the tools, insert the CD in your machine and follow the instructions

Some boards are loaded with a demo program. Some are loaded with a test program. If the test program is not loaded, use KD30 to download the file

MSV30262-SKP\Sample_Code\SKPTest\SKPTest.x30

Test the board by attaching your board to the computer with both the USB and RS232 cables. Power-up the daughter board. Ensure the LCD displays Meus (c) 2002. Go through each menu by pressing the SW button (press S2 and S3 concurrently to move from menu 1 to menu 2).

Menu 1 tests switches and LED. Note what they do. Menu 2 tests the left hand potentiometer (A/D port). Menu 3 tests the temperature sensor (put you finger on it). Menu 4 tests the RS-232 port. Run Hyperterminal on the PC (9600 baud, 8 data bits, 1 stop bit) and verify what you type on the PC displays on the board. Menu 5 tests the external oscillator - pull jumper JP3 to test. Also, on your own, test the contrast potentiometer and the reset button. Try not to remove other jumpers or move switches from the default position.

Download the files for Lab2 from the web page into your file space.

Prelab Questions

1. Where should your “working directory” be located when using lab computers?
2. How many lines do the development tools allow in a C source file?
3. Where is the first place to look for help with labs in this class?

Laboratory Assignments

Using the code that was downloaded during the pre-lab, generate a project file. Your project space should be in your own work space. Hint: the subdirectory path should not contain spaces. Then build the project and generate an .x30 file. Download the program to your board. Connect to hyper-terminal and observe the operation.

You will need to bring your board to the lab test stations - it will be selected for demonstrating the sampling and RS-232 functionality on the board. When the TA checks your board, he will also take your lab report.

You will not need to submit code to Wolfware for this assignment.

Steps

1. Open TM and start a new project. Select the appropriate processor family and working directory. Using the compiler package that came with the tools, finish generating the project. **If the tool offers to update any files, select NO**. This will open the Project Editor.
2. Expand the all and then the .x30 selections in the displayed file tree. With the .x30 file selected, add all of the .c files that were downloaded to the project. Press the "build dependencies" button. Then save the project.
3. On the TM toolbar, use the build button to build the project and generate the file for the boards. This will open the Builder. Once the project is finished building the memory that has been used will be displayed at the bottom of the screen.
4. In the project editor, expand the main.r30 branch. Then open the main.c file. Change the case statement CK_SWLEDs to have the menu 1 to 2 transition based on a SW2 and SW4 concurrent press in the main function, and save the file.
5. Now use the rebuild button on the TM toolbar to rebuild the project. This will pull up the builder and show the status as the project is cleaned and rebuilt using the updated files. The memory should be adjusted for the added line of code.
6. Reload the software onto the boards and test.

Lab Report

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

The general learning objectives of this lab were . . .

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 or modified to complete this lab...

No need to include all the files for the lab. Just include the modified code.

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

Here include the memory report given at the end of the compile process.

In this lab we learned . . . .