

Introduction to FreeRTOS

Purpose

This lab will introduce you to the organization of FreeRTOS-based applications.

You Should Turn In

1. Answers to Q1, Q2, Q3.

As always, output snapshots are cool.

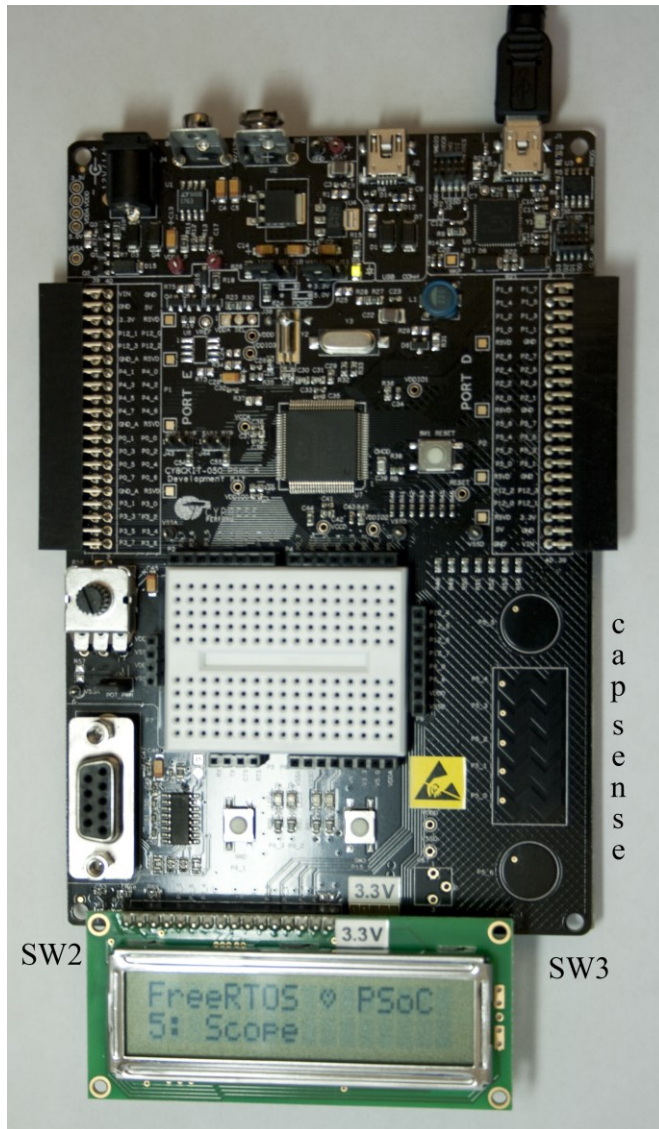
Setup

Copy the CY8CKIT-050-GCC_v1_0.zip archive into your directory. Unzip it, open it, and build the project CY8CKIT-050-GCC_v1_0\CY8CKIT-050-GCC\Demo.cydsn\Demo.

Procedure

First, find the main() routine in main.c. This function uses the FreeRTOS routine xTaskCreate to create a new task called MAIN_TASK.

When you run the demo, the LCD will display a menu at startup to let you select a demo. You use the bottom cap sense switches to select a demo. You then use SW2 to start the demo and SW3 to stop the demo:



Now find the source for MAIN_TASK in Main_Task.c. This task starts five new tasks, one for each of the demos that you can run. It then runs an infinite loop to control the demos.

Q1: Draw a UML sequence diagram for main loop of MAIN_TASK for the use case of starting the program and selecting the scope demo.

Run the Scope demo which displays presses of SW2 as a simple scope trace on the LCD. Use the cap sense slider to change the speed of the trace.

The source for the Scope demo is in Digital_Scope_Demo.c.

Q2: How does the task change the speed of the trace based on the input from the cap sense slider?

Q3: Draw a UML state diagram for one iteration of the main loop of DIGITAL_SCOPE_DEMO_TASK.