Pomona College

Computer Science

Spring 2025: CSCI 181RT

Real-Time Systems in the Real World

Lab 2

Wednesday, February 5, 2025
Edmunds Hall 105
1:15 PM - 4:00 PM

Professor Jennifer DesCombes

Lab 2 Goals - Primary

- Complete Download of Tools
  - Can Use Any Resources Available
  - Can Use Each Other as Resource (Collaboration)
- Establish Communications from Evaluation Board to Computer
- Compile and Load Sample Program (provided)
- Using Sample Program as a Framework, Write, Compile and Execute “Hello World” Program
  - Display in Terminal Window

Lab 2 Goals - Secondary

- Add Character Input from Terminal
  - ‘H’ or ‘h’ - Redisplay “Hello World”
    - Include CR and LF?
  - Character Input Without Carriage Return (Enter Key)
- Use Character Input from Terminal to Turn on LEDs
- Use Character Output to Terminal Indicate State of Buttons

Assignment - Lab Preparation

Documentation

Title		
Curiosity PIC32MZ EF 2.0 Development Board Users Guide	Download	☆
PIC32MZ_EF Curiosity Board 2.0 Design Documentation	Download	☆
Create a new MPLAB Harmony v3 project using MCC	Link	
Update and Configure an Existing MHC-based MPLAB Harmony v3 Project to MCC-based Project	Link	
Getting Started with Harmony v3 Peripheral Libraries on PIC32MZ EF MCUs	Link	
Getting Started with Harmony v3 Drivers and Middleware on PIC32MZ EF MCUs using FreeRTOS	Link	
Creating a Hello World Application on PIC32 Microcontrollers Using MPLAB Harmony v3 and the MPLAB Code Configurator (MCC)	Download	☆
How to Build an Application by Adding a New PLIB, Driver, or Middleware to an Existing MPLAB Harmony v3 Project	Download	☆
How to Use the DMA CRC Generator on PIC32MX/PIC32MZ/PIC32MM Devices	Download	☆

NOTE: Date reflects original presentation date.

Lab 2 Goals - Secondary

- PIC32MZ Embedded Connectivity with FP Unit (EF) Family

  https://ww1.microchip.com/downloads/aemDocuments/documents/MCU32/ProductDocuments/DataSheets/PIC32MZ-Embedded-Connectivity-with-Floating-Point-Unit-Family-Data-Sheet-DS60001320H.pdf