EE 337: Microprocessors Laboratory (Spring 2024)

Indian Institute of Technology Bombay

Lab 1: 20 points Date: January 10, 2024

1. [10 points] Download the program given in the Lab 1 folder `PORTSQ.asm`. Then complete the following steps.
   - Make a new project containing the downloaded program and start debugging.
   - Find out all the errors present in the code and debug them one by one.
   - Run the program successfully.
2. [10 points] Use the same (corrected) program and complete the following steps.
   - Start debugging.
   - Go to memory location 40h put the integer 2.
   - Go to memory location 41h put the integer 4.
   - Go to memory location 50h put the integer 5.
   - Go step by step without going into any functions.
   - Run till the first instruction of the FINDr function using a breakpoint.
   - Open Logic analyser and setup Port1.
   - Run the entire code and find the frequency.

For instructions on how to start debugging, using logic analyzer, etc., please watch the demo provided in following link : Keil Demo.

TA Checkpoints

1. Check that the student knows how to create a new project in Keil μVision with the right settings for the Pt-51 board.
2. Check that the student knows how to compile the assembly program.
3. Check that the student has corrected all the errors in the given program and has compiled successfully.
4. Check that the student knows how to modify memory at a particular location.
5. Check that the student knows how to step through the program in debug mode.
6. Check that the student knows how to set a breakpoint at a particular line in the program.
7. Check that the student knows how to examine the contents of registers.
8. Check that the student has found the correct frequency.