

Computer Architecture

Lab 8

In this lab, we'll continue to work with interrupts.

You should turn in the source file for the program you're asked to write. It should be submitted via the tool available on Sakai for this lab. It is due by the start of the next class period.

Interrupt Programming

In Lab 6, we worked with receiver interrupts to process keyboard inputs. Since that was a long time ago, in the distant and near-forgotten era known to historians as "Before Spring Break," I've included the lab and the solution code for the problem along with this lab. Hopefully this material will help jog your memory and you can use it to help with the current task.

In this lab, we're going to work with the addition overflow interrupt to print an error message to the console in the event the sum register overflows.

First, we have to set bit 0 of the interrupt status register to 1 to enable the interrupts. (To do this, we read the value of the register into a general purpose register, modify that value, and then store it back into the status register in the coprocessor.) Then, when an arithmetic overflow occurs, the program will automatically jump to address x80000180 to service it.

Write code that will input two integers from the user and then output either the sum or an error message indicating overflow occurred. Use the interrupt service routine to print the error message.