CS 232 Computer Organization

Interrupts

- Program interrupts: generated by some condition that occurs as a result of an instruction execution, such as arithmetic overflow, division by zero, attempt to execute an illegal machine instruction, or reference outsize a user’s allowed memory space.

- Processor Handling
  - software interrupt instruction loaded by processor →
  - processor halts thread execution →
  - processor saves thread state →
  - processor executes interrupt handler →
  - processor resumes thread execution

Assembly Language

- Use symbolic name of each instruction
- Use symbolic address (label)
- Assembly language is hardware dependent

Two-Pass Assembler

- First pass is to construct a symbol table that contains a list of all labels and their associated line number.
- Second pass read the program again from the beginning. Each instruction is translated into the Appropriate binary machine code.