About Final Exam

Scoring Criteria

- Labs 40%
- Homework 20%
- Finial Exam 40%

- Average of labs&homeworks: ~55/60
- Average of final exam ~75/100

Final Exam

- Arranged in the afternoon on **First Friday of fall semester** 2023. 14:00-16:30.
- Close book test. Figures of data path, ISA, state machine is provided.
- Average score: ~75

- Get **at least 50 points** to pass the course.

Question Type (not determined)

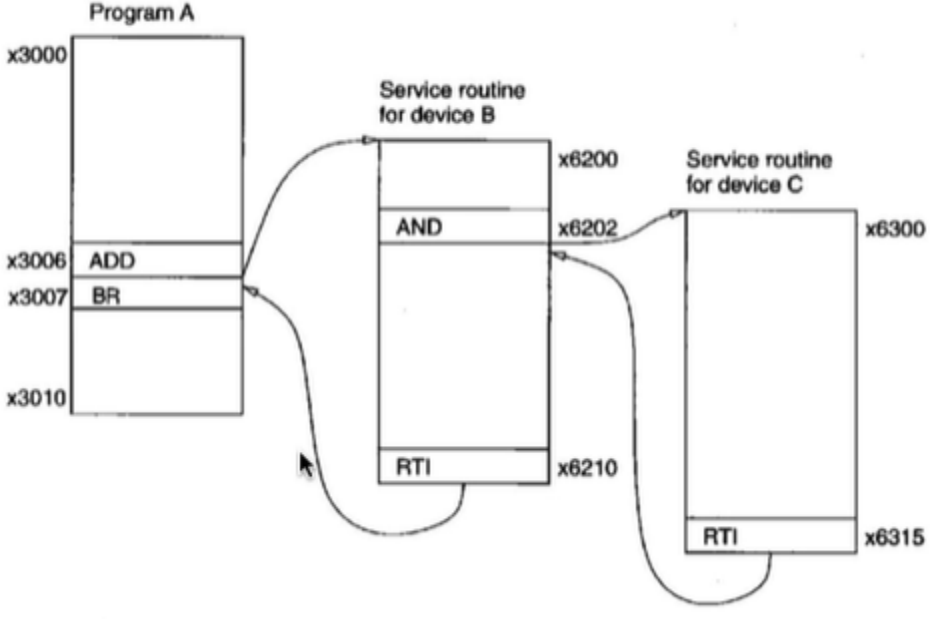
- Multiple Choice Questions, about 10 questions (~20%)
  - Chapter 1-10
  - Every detail in the book.
- Comprehensive Questions, 7~8 questions (~80%)
  - Chapter 2~9 each 1 question.
  - Circuits, data path, state machine, nesting routines, programming ...

- Chapter2: Binaries
  - Caculation, conversion
- Chapter3: Circuits
  - Read / Draw
  - CMOS / digital logic
  - Memory
  - Maybe combined with the following chapters.
    - Such as exercise 5.41

- Chapter 4, 5: LC-3 data path
  - Understand every detail in the state machine (P702, P713)
  - Understand every detail in the data path (P704)
    - The data path on P714 supporting interrupts, traps, and exceptions is not required.
  - Able to design new types of new instrcutions.
    - Such as exercise 5.51

- Chapter 6: Programming
  - Often in LC-3 Assembly language, maybe sometimes LC-3 machine codes.
  - Will not be very complicated.
  - Combined with other chapters.
- Chapter 7: Assembling
  - Assembling procedure, symbol tables, pseudo-ops
  - lab6a
- Chapter 8: Subroutines, Stack Recursion
  - User stack analysis
  - Programming

- Chapter 9:
  - Privilege, Priority, Memory Address Space
  - Interrupts
    - Nesting interrupt procedure
    - System stack analysis



Address	Value
x2E01	
x2E02	x0404
x2E03	
x2E04	x8002

Register	Value
R6	x2E01
Saved.USP	xE001
Saved.SSP	

- Chapter 9:
  - Traps
    - Memory mapped I/O
    - Details in trap routines
      - e.g. How the GETC, OUT, etc implemented?
    - Design new I/O trap routines.
  - Exceptions
    - How to handle?

Useful Materials

- The Appendix A and C arr VERY IMPORTENT!
- The whole centents in the textbook.
  - Waring: MUST be 3rd edition.
- Exercises on the textbook (if you have time)
  - Students Solution Manual
- Course website of the University of Texas at Austin
  - https://users.ece.utexas.edu/~patt/19f.306/

Enjoy Your Summer Vacation

(Welcome to become a TA next year)