

HKN Midterm 3 Review Session Doubts

1 Serialization

- How many clock signals it takes for serialized design to do something?
 - Depends on what you are trying to do. N bits may be N cycles.
 - Very dependent on what you are implementing.

2 Tri-state Buffers

- What is bus?
 - Bi-directional communication wire that is global to system and controlled by tri-state buffer.

3 FSM

- Why $\log_2 N$ state bits?
 - You need to represent each state using only bits.

4 Memory

- Addressability?
 - Number of bits in a specific address.
- What if \overline{CS} is used instead of CS in memory
 - Will have to complement the input your giving.

5 LC3 and von Neumann Model

- Why x3000?
 - To separate the instructions from data in the program.
- What is PC?
 - It points to the memory location that has the next instruction to execute.
- How to skip an instruction using BR?
 - Set offset such that PC points to the instruction after the one you want to skip

- **LEA vs LD?**
 - LEA: Stores address
 - LD: Stores value at the address
- **LD vs LDR?**
 - LD: Access memory through PC+offset
 - LDR: Access memory through SR+offset
- **What are operands in LC3 instructions?**
 - The things that you use to calculate/execute the instruction.
- **What is setcc?**
 - States that the command changes the condition code (N/ZP).
- **Do BR statements back to back use the same condition codes?**
 - BR itself doesn't change CC/N/ZP values.
- **Does every instruction do FETCH?**
 - Yes, every instruction.
- **Does memory also have MDR in the von Neumann model?**
 - Yes, Memory consists of MAR and MDR.
- **What does program in LC3 refer to?**
 - The set of instructions in memory.
- **Aren't all the instructions actually stored in IR?**
 - No, IR stores the one instruction you are currently executing, not all of them.

6 Miscellaneous

- **What does 1k mean?**
 - 1k doesn't mean 1000 in binary context. It means 1024 or 2^{10}