

Approaches to Digital System Design

- In Digital Devices, you learned how to create a logic network (Flip-flops + combinational gates) to solve a problem
 - The logic network was SPECIFIC to the problem. To solve a different problem, needed a different logic network
- Another approach is to design a logic network that can be used to solve many different problems
 - This *general purpose* logic network might not be as efficient (speed, cost) as a special purpose logic network, but hopefully can be used to solve multiple problems!

A Computer!!

- A **Computer** is a digital system whose operation can be specified via a **Program** .
 - Changing the program changes the computer behavior! (solves a different problem!!!).
- A **Program** is simply a sequence of binary codes that represent instructions for the computer. The **Program** is stored in a **Memory** .
- **External inputs** to the **Computer** can also alter the behavior the computer. The computer will have **Outputs** that can be set/reset via program instructions.
 - These external inputs/output are know as the I/O section of the computer

Components of any Computer System

- Control – logic that controls fetching/execution of instructions
- Memory – area where instructions/data are stored
- Input/Output – external interaction with computer

