I/O Devices

CS333 :: Storage Systems

Williams College

Unit Overview/What to Look For

- This unit gives a high-level overview of I/O devices
  - How we connect devices to our CPU
    - Devices transfer data over "buses", and different buses have different speeds
  - How the OS interacts with a device
    - Fixed & well known interface defines communication
    - Polling & Interrupts are two strategies for "structuring the conversation"
- Think about how the hardware realities affect our software designs
  - We *need* to know certain things to write software, but some information is unnecessary but helpful for optimization. How much information is "enough"?
  - What is the cost of changing an interface—hardware and software?

Strategy

- I would probably watch the video first
- This is a relatively short chapter, and hopefully clear
  - The video walks through the examples in the textbook in addition to some higher level discussion
- The details are less important than the big takeaways
  - Don't memorize acronyms or interface names
  - Instead think about tradeoffs/choices

Of all the chapters, this one is the one that has the least bearing on the overall arc of the course. It's primary goal is to set up our future discussions of new device designs and new device adoption.

Terms and Jargon

- Context switch
- Interrupt

Helpful readings on processes can be found in Chapter 13 of the free online Divie Into Systems textbook at:
https://diveintosystems.org/antora/diveintosystems/1.0/OS/processes.html