

### **I/O Devices (Ch 36)**

#### **Discussion Questions**

- How does programmed I/O differ from DMA?
    - which offers better performance/efficiency?
  - How does waiting for a device to service a request relate to the producer-consumer problem?
  - When is it better to do device polling instead of interrupts?
    - When is it the reverse?
    - What about a hybrid approach?
    - polling for fast devices
    - interrupts for slow
    - hybrid for variable
  - How does interrupt coalescing affect performance?
  - How does memory mapped I/O differ from in/out instructions?
- How can we build one file system in the OS that interacts with all sorts of storage devices (IDE, SATA, SSD, USB) without modifying the FS code?
  - What is the downside of abstracting devices?
  - Why is it that when a device driver crashes it often crashes your entire OS?