CST 334: Operating Systems

Dr. Glenn Bruns

# Lab: I/O devices and drives

1. What is the difference between a “device driver” and a “controller”?
2. What is a drawback of using the same interface between the OS and all kinds of hard drives? (Think about it.)
3. The OS read/write the registers on a device interface by using a) I/O instructions, or b) memory-mapped I/O. Which approach used with the x86 CPU?
4. When I/O instructions are used, are these instructions privileged or not? Why?
5. How much of the Windows 10 (or 7, or 8) code is from device drivers? (Use google)
6. What is the difference between IDE, SATA, and SCSI? (Use google)
7. In Linux, what is a ‘bio’ structure? (Use google)
8. What does DRQ stand for in the IDE device driver status register? (Use google)
9. If you still have time, study the xv6 code in Fig. 36.5 of the OSTEP text carefully (chap 36).
10. If you still have time, read the paper “what every programmer should know about memory”, listed in the references section of chapter 36 of OSTEP.

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