

Outline for May 16, 2008

Reading: Text, §6, 7, 10

1. Greetings and felicitations!
2. Issues
continued from last lecture
 - a. Goals; what should a good process/device interface do?
 - b. Device hardware; what does a device look like?
 - c. Device interface; how are the devices connected to the computer?
 - d. Device drivers; what do the kernel modules interacting with devices look like?
 - e. Process interface; how do the processes access devices?
3. Goals
 - a. Character code independence
 - b. Device independence
 - c. Efficiency
 - d. Uniform treatment of devices
4. Device Hardware
 - a. Disks: platters, tracks, cylinders, sectors, heads, arms; seek, rotational, and transfer latencies
 - b. Drums: one head per track; use
 - c. Magnetic tapes: nine-track tapes, frames, tape density, records, inter-record gaps, labels, headers, trailers; winding, transfer latencies
 - d. Communication lines: simplex, half-duplex, full duplex; baud; protocols; bit stuffing, character stuffing (escapes)
5. Device Interface
 - a. Device registers, controllers
 - b. Channels, commands, channel programs
 - c. Command chaining, data chaining (scatter-gather)
 - d. Selector, multiplier channels
6. Device Drivers
 - a. Standard interface; upper, lower part