



College of Information Studies

University of Maryland Hornbake Library Building College Park, MD 20742-4345

Software Stack

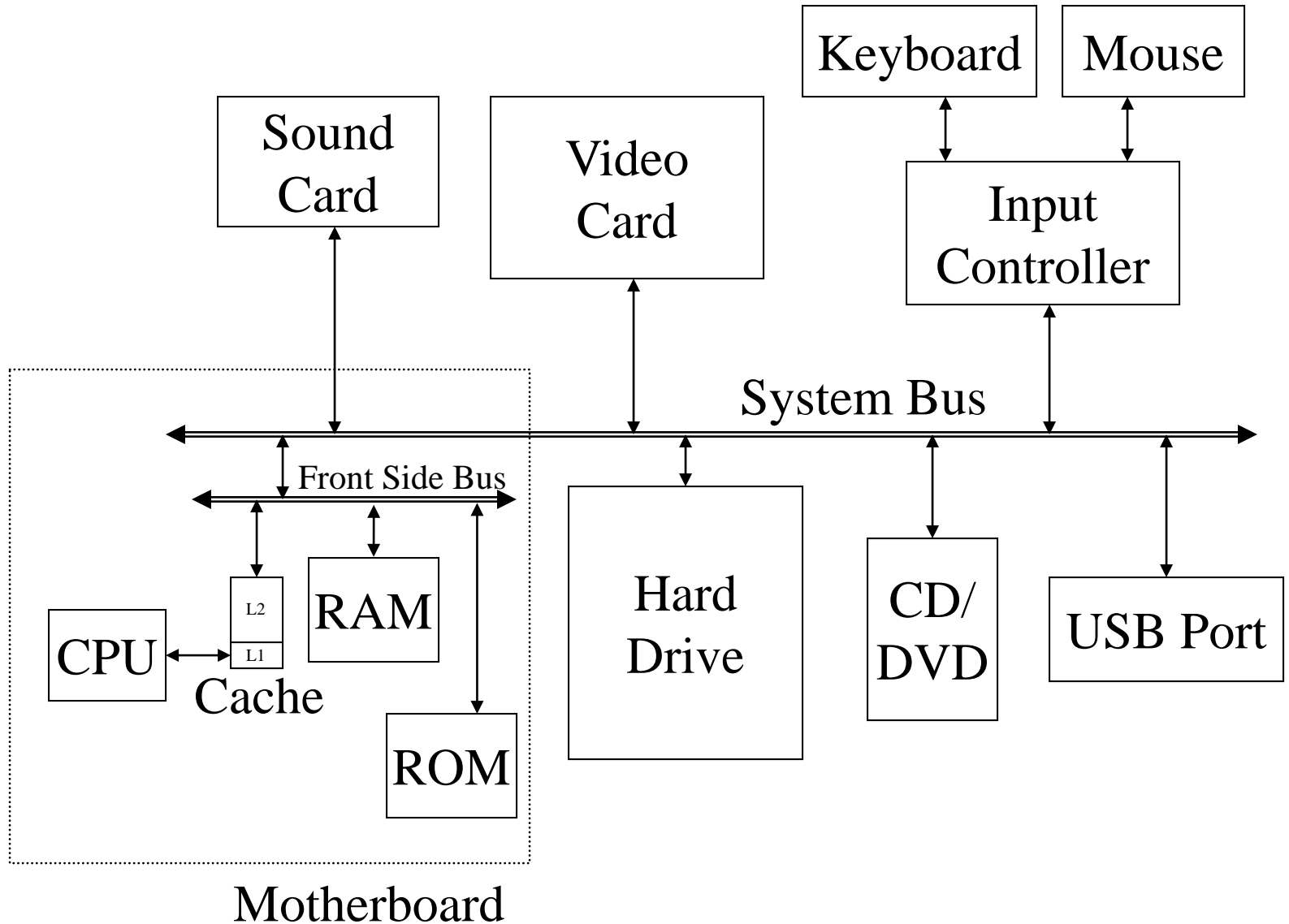
Session 7

INST 346

Software Stack

- Application Program (“App”)
- API
- Runtime environment
- Operating System
- BIOS
- Hardware drivers
- Microcode

System Architecture



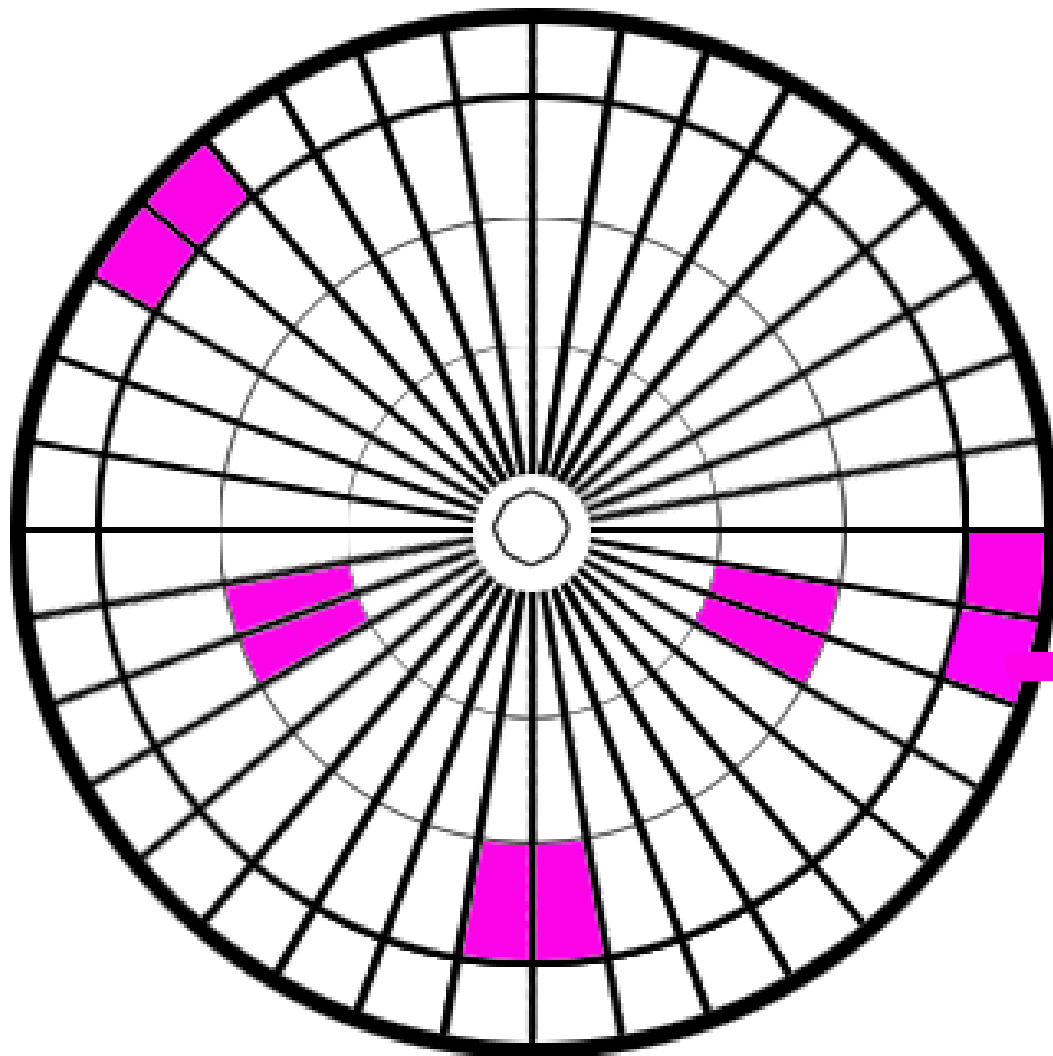
Some Operating Systems

- Windows
- Unix
 - Linux
 - Android
 - macOS
 - iOS

Operating System Functions

- Processor scheduling
 - Single core, multi-core
- Disk management
 - Formatting, file allocation, virtual memory, defragmentation, encryption, compression, ...
- Access control
 - Passwords, permission levels, file sharing, ...
- Configuration management
 - Parameter selection
 - Updates (OS, drivers, BIOS, microcode)

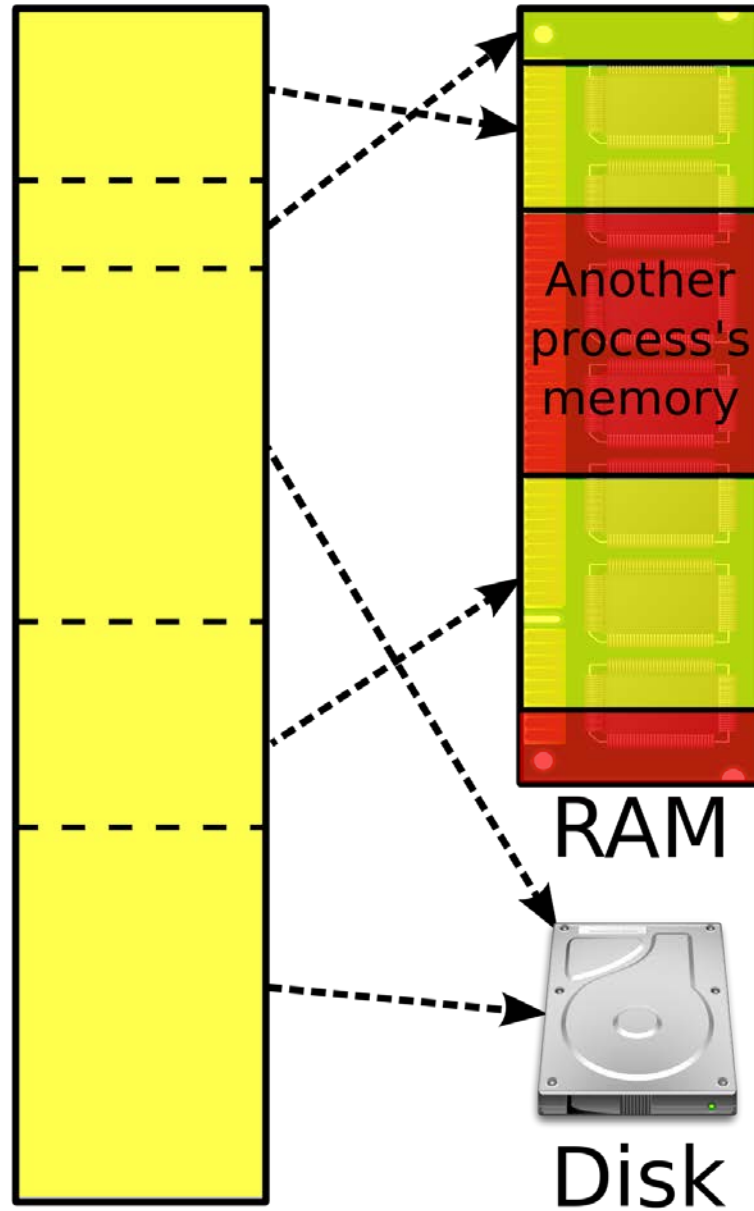
A file as stored on a hard disk



A file is stored
across a number
of clusters

Virtual memory
(per process)

Physical memory



BIOS

- Power-On Self Test (POST)
- Boot processing
 - Runs the drivers
 - Loads the operating system
 - Boot priority (removable device first)
- (originally) Low-level device control
 - Now managed by specialized device “drivers”

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Before You Go

On a sheet of paper, answer the following (ungraded) question (no names, please):

What was the muddiest point in today's class?