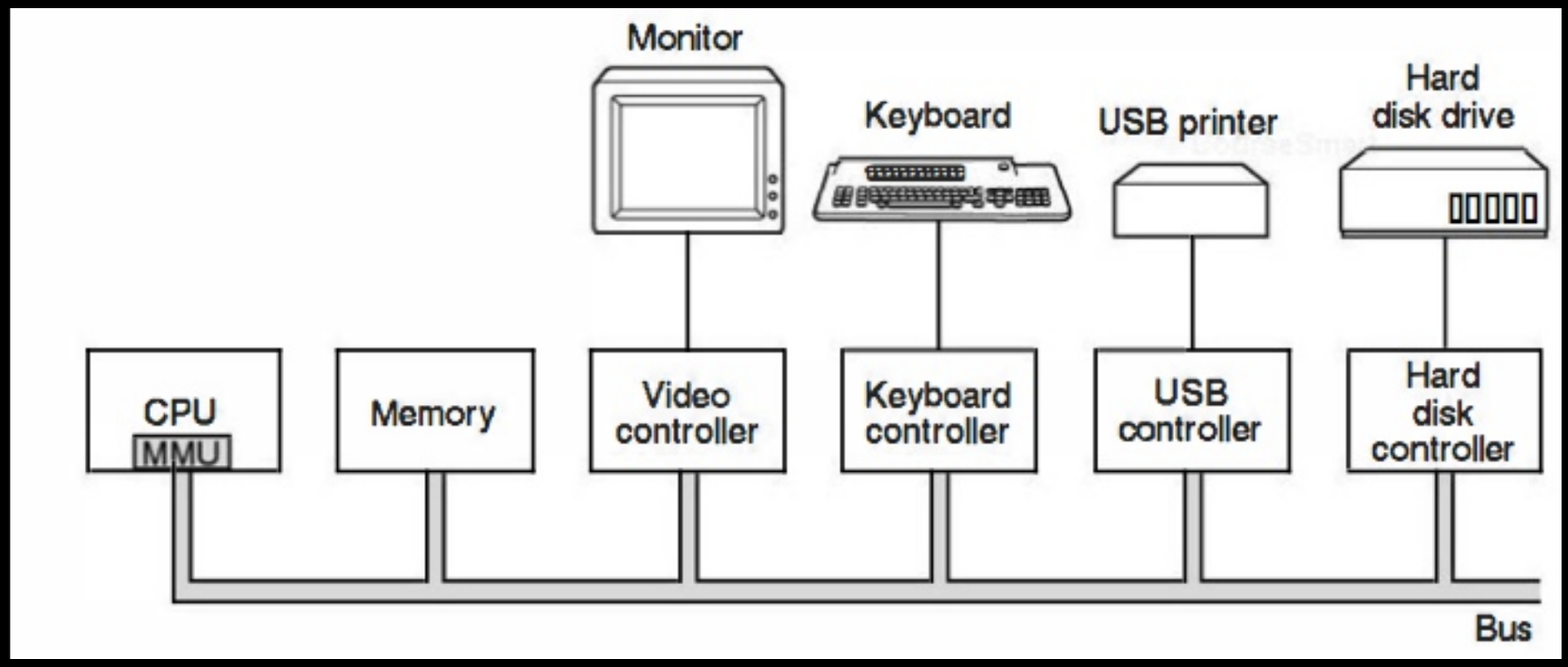
Семинар 2

Насущное

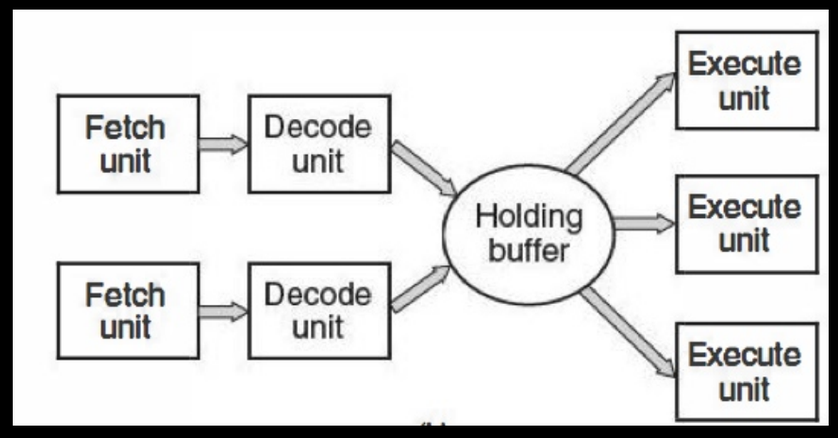
- GIT
- повторение
- network command line tools
- hometask
- parallels.mipt.ru

Hardware review

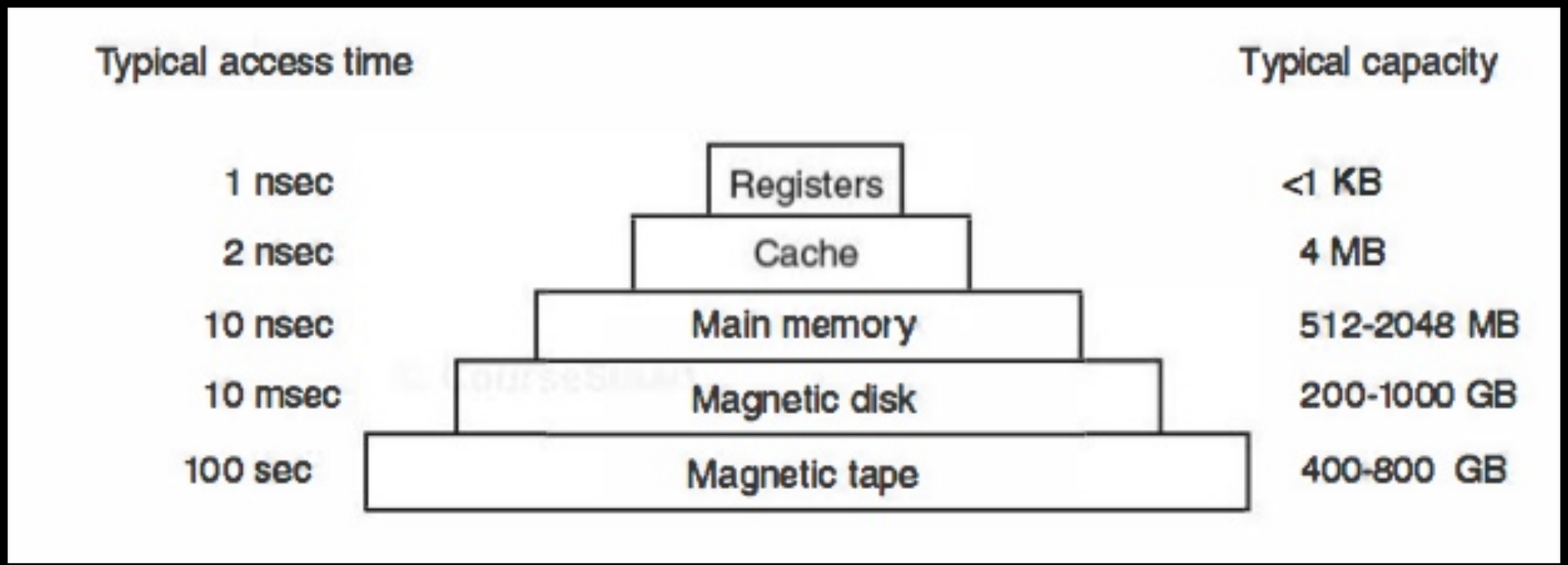


CPU

- registers, programmer visible registers
- program counter
- stack pointer
- Program Status Word
- fetch -> decode -> execute
- syscall, traps
- Multithread and multicore



Memory



ROM
CMOS

Storage Devices

Consider Both

	SSD	HDD
Seek Penalty	None	10ms
IOs per Second	3k-30k IOPS	80 IOPS
Sequential Speed	400 MB/s ÷1250	50÷ 160 MB/s
Parallelism	Limited	None
Read versus Write	Writes more expensive	Symmetric

virtual memory, MMU

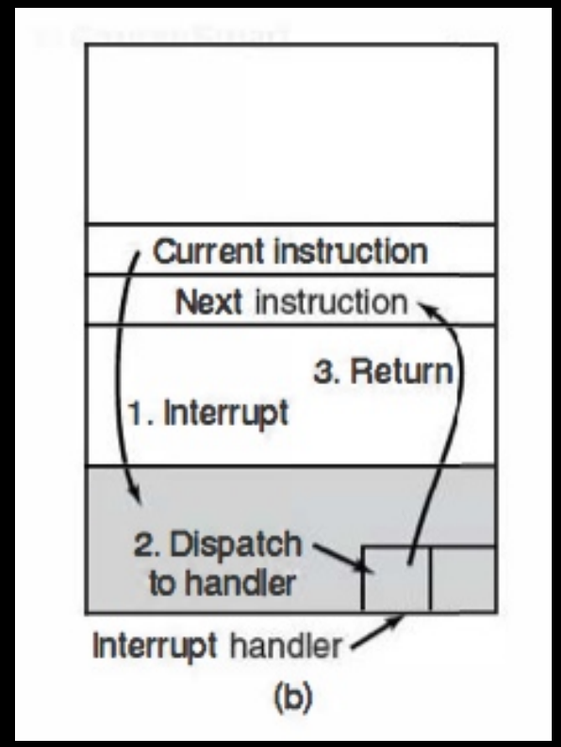
I/O

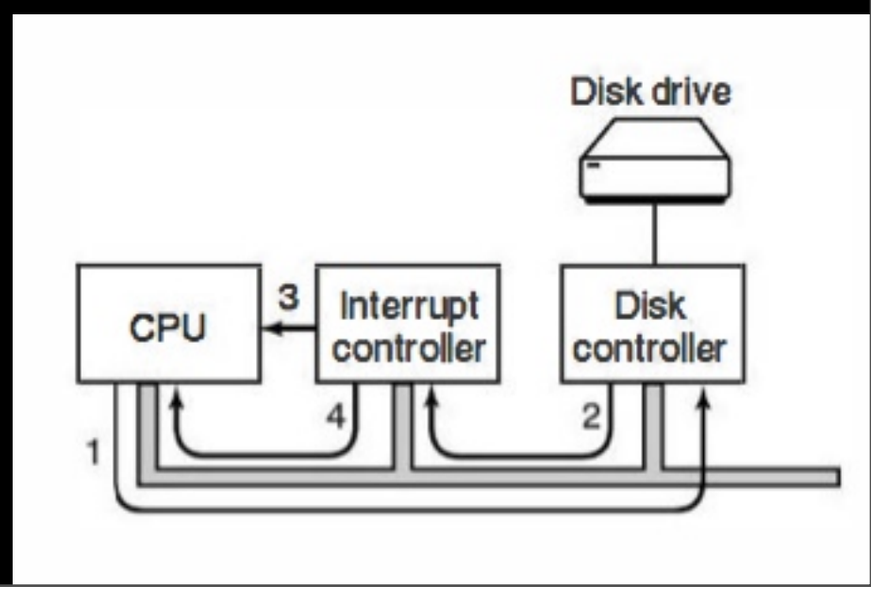
- contoller and device
- device driver
- registers-> I/O port space
- input & ouput:
  1. busy waiting
  2. interrupt on finish
  3. DMA

Interrupt example

1. do the job
2. interrupt on finish
3. inform CPU
4. provide dev number

- interrupt vector





Bus

- PCI, PCI Express
- USB
- SCSI
- IEEE 1394
- plug and play

Booting

- BIOS
- RAM, basic devices
- other devices listing, configure if needed
- detect partition to boot from
- start OS
- drivers check, load into kernel
- processes, login, gui

Operating system concepts

Processes

a container to hold all information to hold the program

- address space, core image
- process table
- interprocess communication
- signals
- UID, GID, su

Operating system concepts

Files

- path name, root directory
- working directory
- file descriptor
- root file system, mountable file system
- block special files, character special files
- pipe

Operating system concepts

Address Space

protection mechanism

Input/Output

Protection

rwx

Shell

Privileges

- chown
- chgrp
- ls -la
- umask
- getuid() getgid() perror()

Net

- ssh -p 22 avriy@parallels.mipt.ru
- sftp avriy@parallels.mipt.ru

GIT

- checkout ...
- commit -m «commit message»
- push, pull