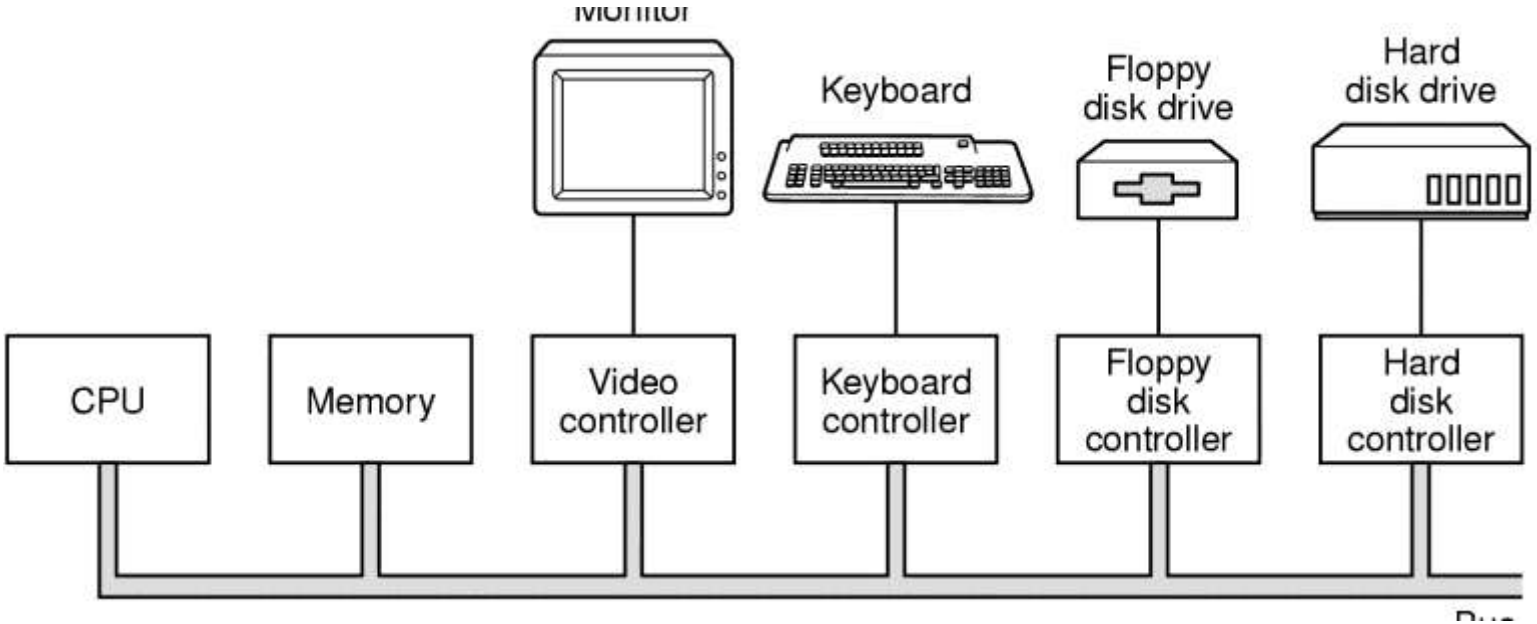
Sistem Operasi

Tawar, S.Si, M.Kom
paktawar@uad.ac.id, paktawar@gmail.com

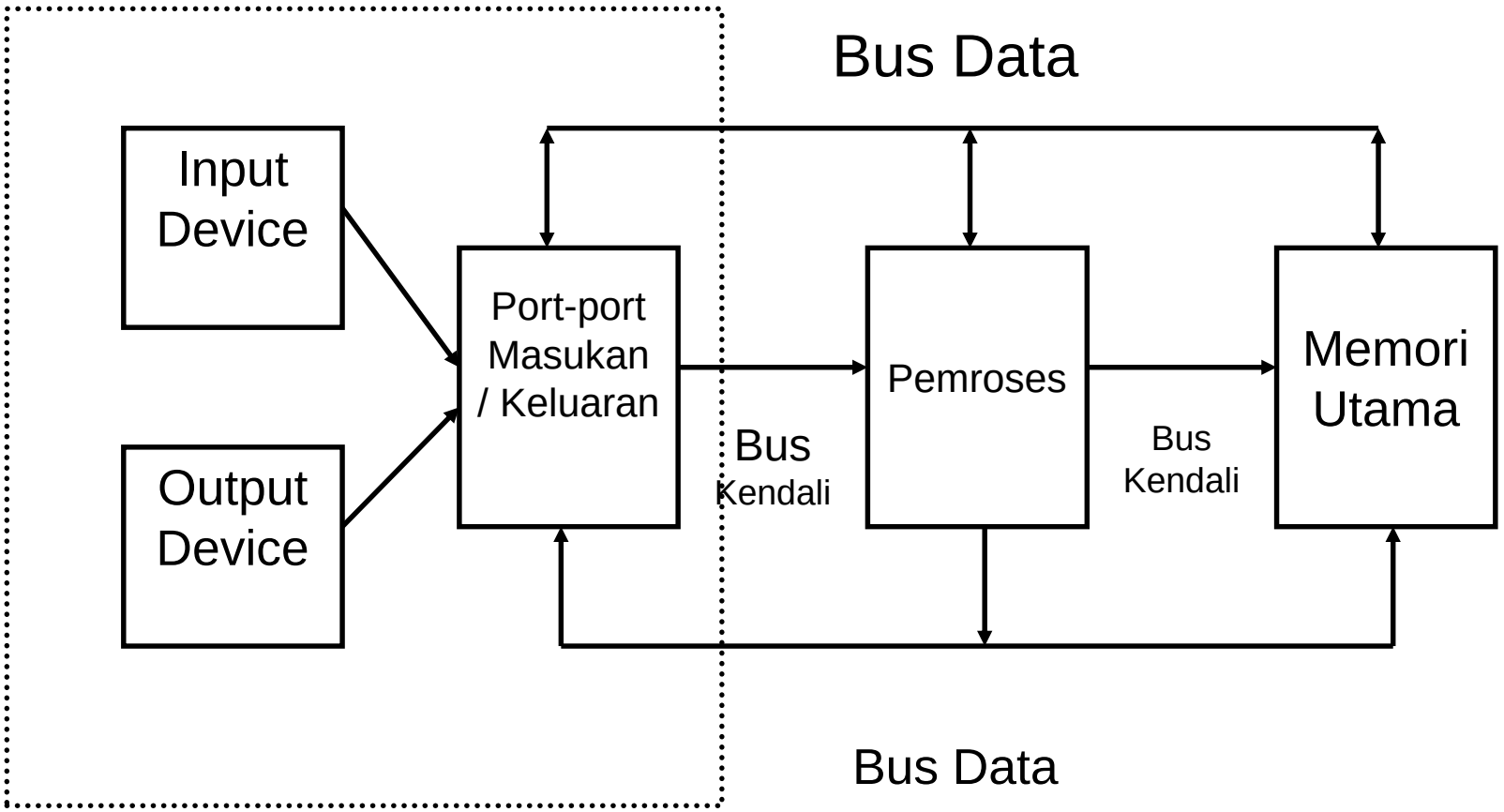
Komponen Sistem Komputer

- Pemroses
- Memori Utama
- Perangakat I/O
- Interkoneksi antar komponen

Komponen PC sederhana



Skema Blok Sistem Komputer



Pemroses

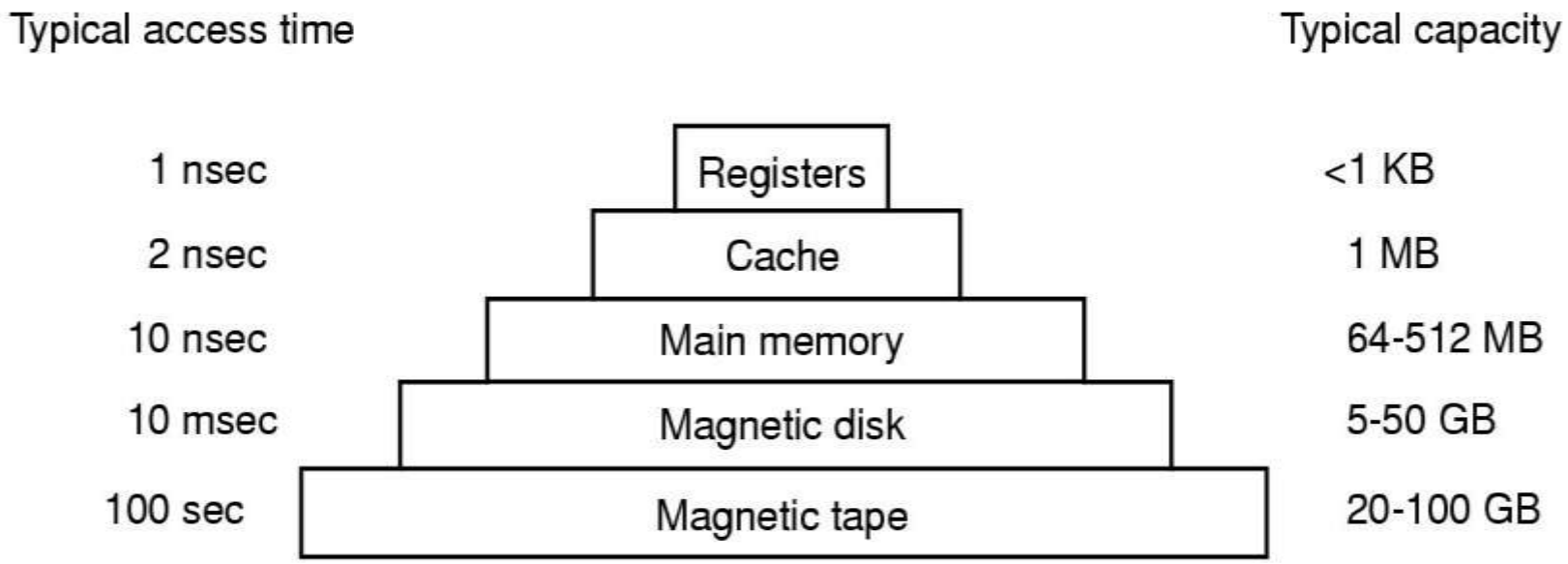
- ALU (Arithmatic Logic Unit)
- CU (Control Unit)
- Register

Pemroses – Processor - CPU

- Pengendali operasi komputer
- Bekerja dengan melaksanakan instruksi/operasi.
- Dikendalikan oleh CLOCK.
- Setiap satu pulsa clock ➔ 1 operasi
- Operasi :
  - Aritmatika
  - Logika
  - Kendali/kontrol

Memori

- Penyimpan data dan program
- Jenis memori :



Memori Utama

- Bersifat volatile
- Tempat untuk menjalankan program
- Teknologi :
  - RAM, EDO RAM, SD RAM, DD RAM

Perangkat I/O

- Untuk memindahkan data antara komputer dan lingkungan eksternal
- Terdiri :
  - Block oriented device
  - Character Stream Oriented Device
- Komponen:
  - Komponen mekanis
  - Komponen elektronis
- Dikendalikan oleh *device adapter*

Interkoneksi Antar Komponen (BUS)

- Address Bus
- Data Bus
- Control Bus

Interkoneksi Antar Komponen

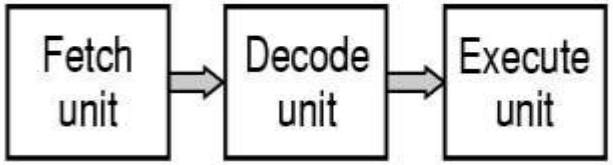
- Industry Standard Architecture (ISA).
- Micro Channel Architecture (MCA)
- Enhanced Industry Standard Architecture (EISA)
- Peripheral Component Interface (PCI)
- VESA Bus
- Universal Serial Bus (USB)

Bus type	Bus data width	Bus speed	Data transfer rate
PC/XT	8 bits	4.7 - 8 MHz	3.25 (Mbits/Sec)
ISA	16 bits	8 MHz	6.5 (Mbits/Sec)
EISA	32 bits	8 MHz	32 (Mbits/Sec)
MCA	32 bits	8 MHz	20 (Mbits/Sec)
VESA	32 bits	33 MHz to 50 MHz	132 (Mbits/Sec) and above
PCI	32 bits	33 MHz	132 (Mbits/Sec)

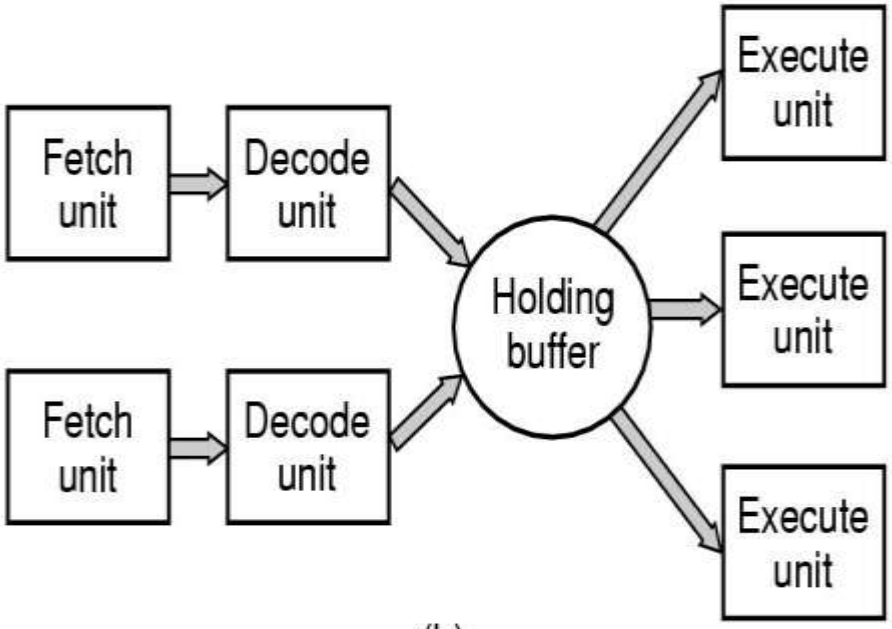
Siklus Instruksi

(a) Siklus instruksi :

- Fetch
- Decode
- Execute



(a)

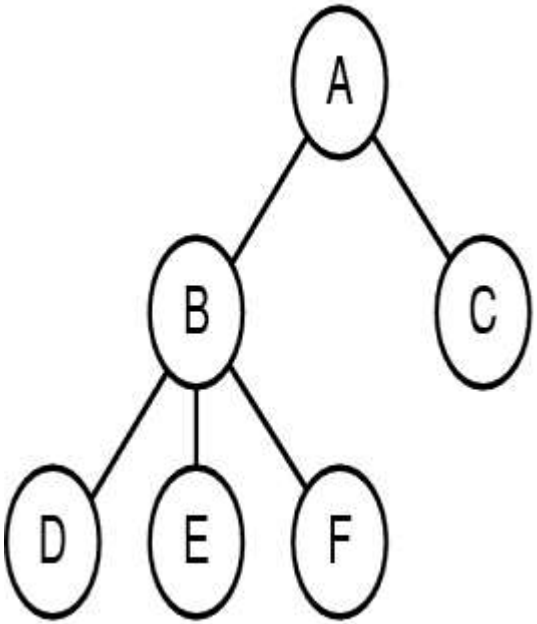


(b)

(b) Superscalar CPU

Proses

- Proses : program yang sedang aktif di memory
- A process tree
  - A created two child processes, B and C
  - B created three child processes, D, E, and F



Deadlock

(a) A potential deadlock. (b) an actual deadlock.