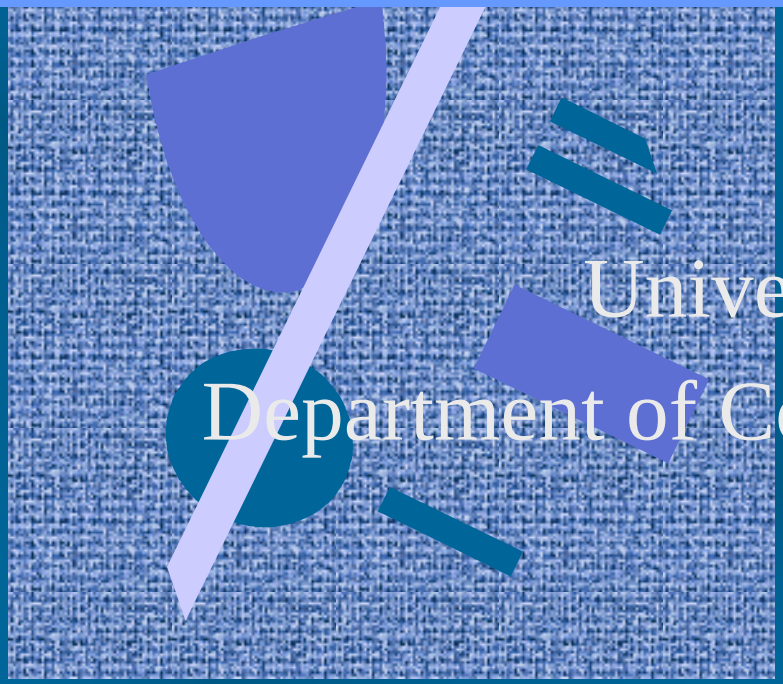
581365-8
Computer Organization II (Tietokoneen rakenne)



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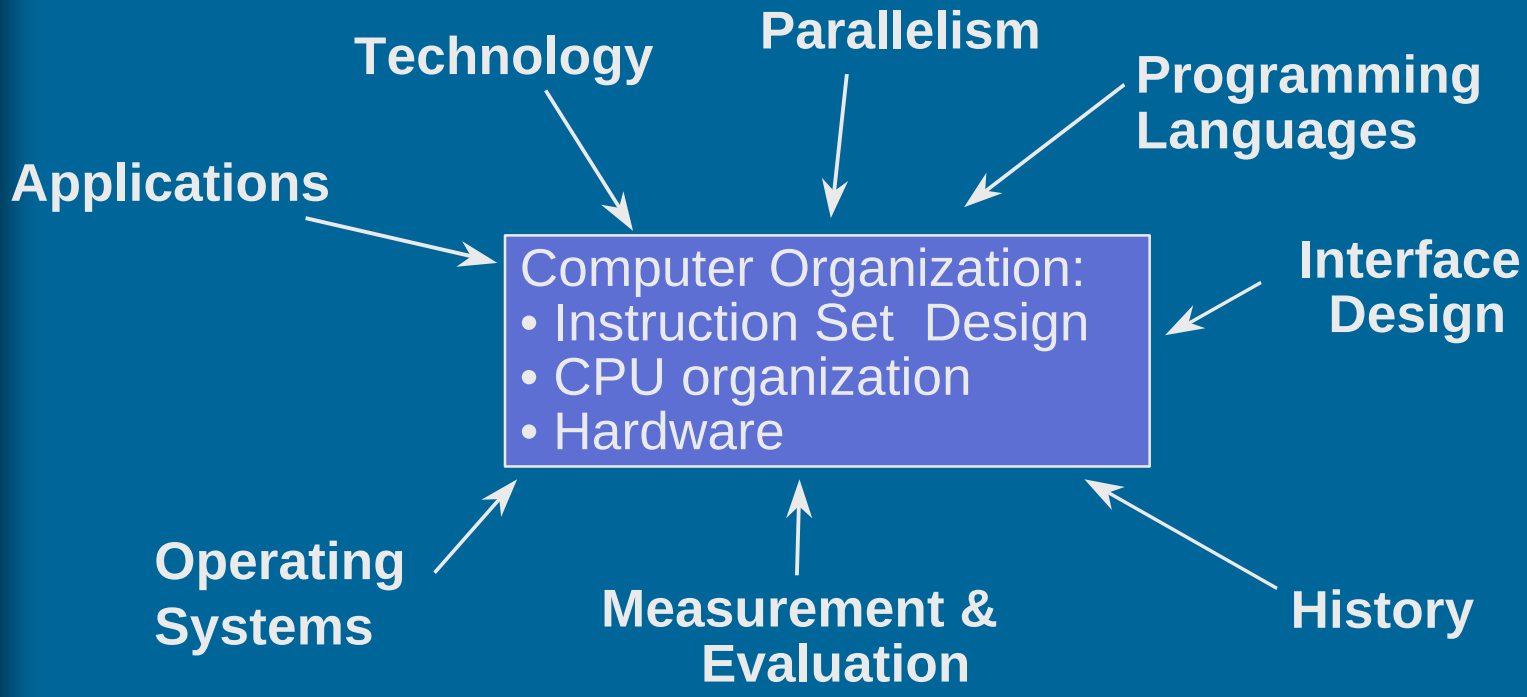
Fall 1999

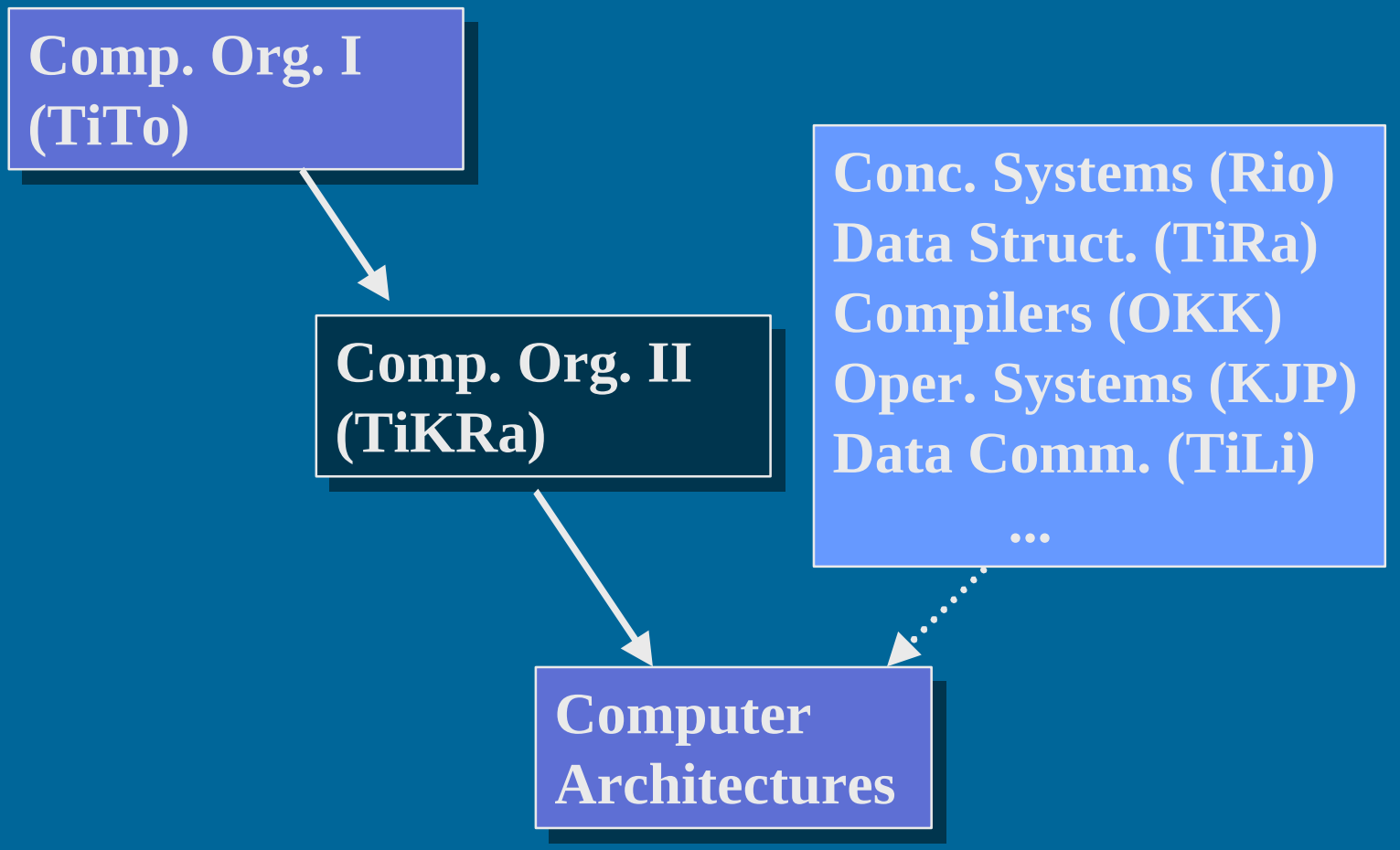
Course Focus

- Understand basic computer system design from the user (human, OS, compiler) viewpoint as well as from the designer viewpoint.
- Understand how a simple hardware clock signal makes a computer to execute programs.

Peripheral topics



Related Courses



Notice

- These slides are made to support lectures and to be used with the text book.
- They do NOT include everything that is covered in the lectures.
- They are NOT a replacement for a text book.
- If you need a self-contained presentation, please use the text book.

Motto

- “It is not good exercise,
  if you do not sweat”

  (“Kunto ei nouse, jos ei tule hiki”)

WWW Information

- Course home page
  http://www.cs.helsinki.fi/~kerola/tikra/
- This semester schedule
  .../tikra/S99/aikataulu.html
- Lectures *.../luennot/*
- Homeworks *.../laskuharj/*
- Old exams *…/tikra/kokeet/*
- Newsgroup *hy.opiskelu.tktl.tikra*

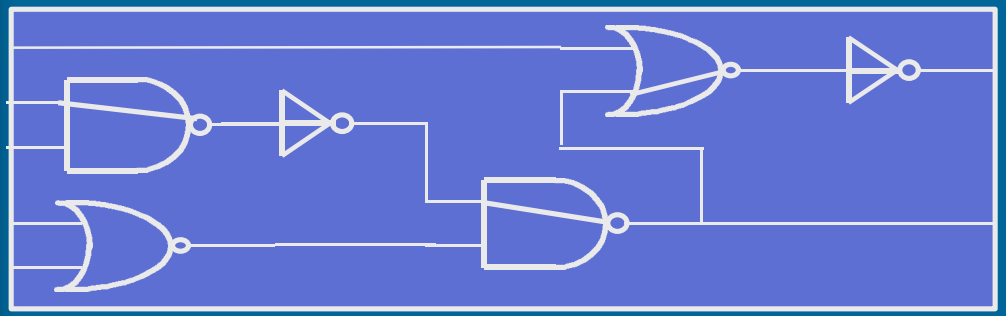
Comp. Org. I (TiTo, Tietokoneen toiminta)

```
A := B + C;
```

High level language

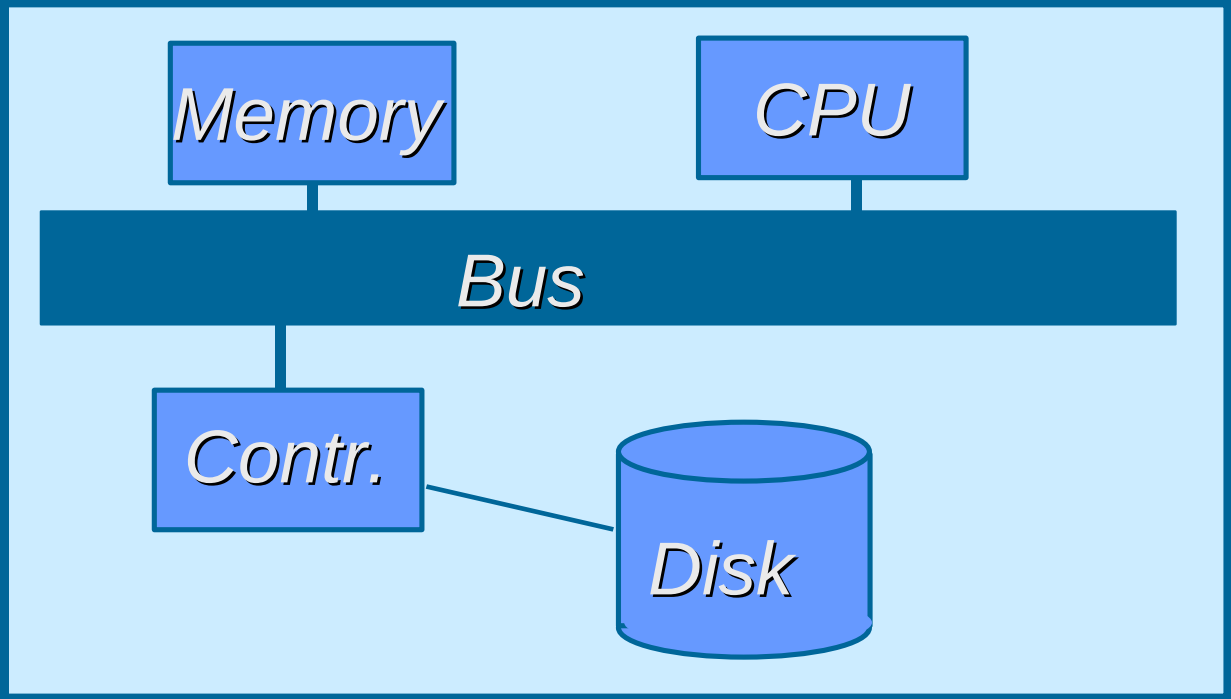
```
MOV  AX, B
ADD  AX, C
MOV  A, AX
```

Assembler



Logic circuits

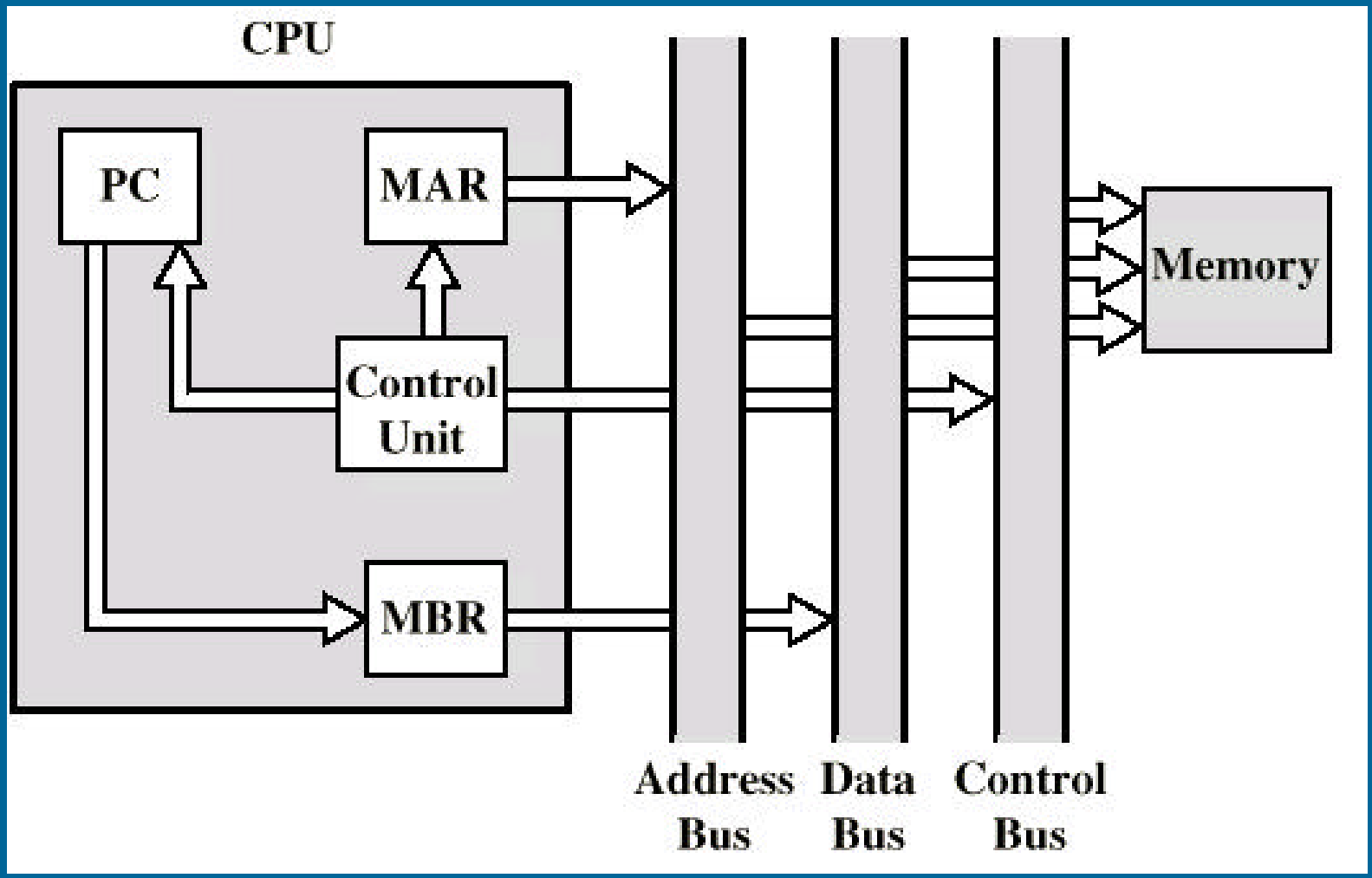
Comp. Org. II (TiKRa, Tietokoneen rakenne)



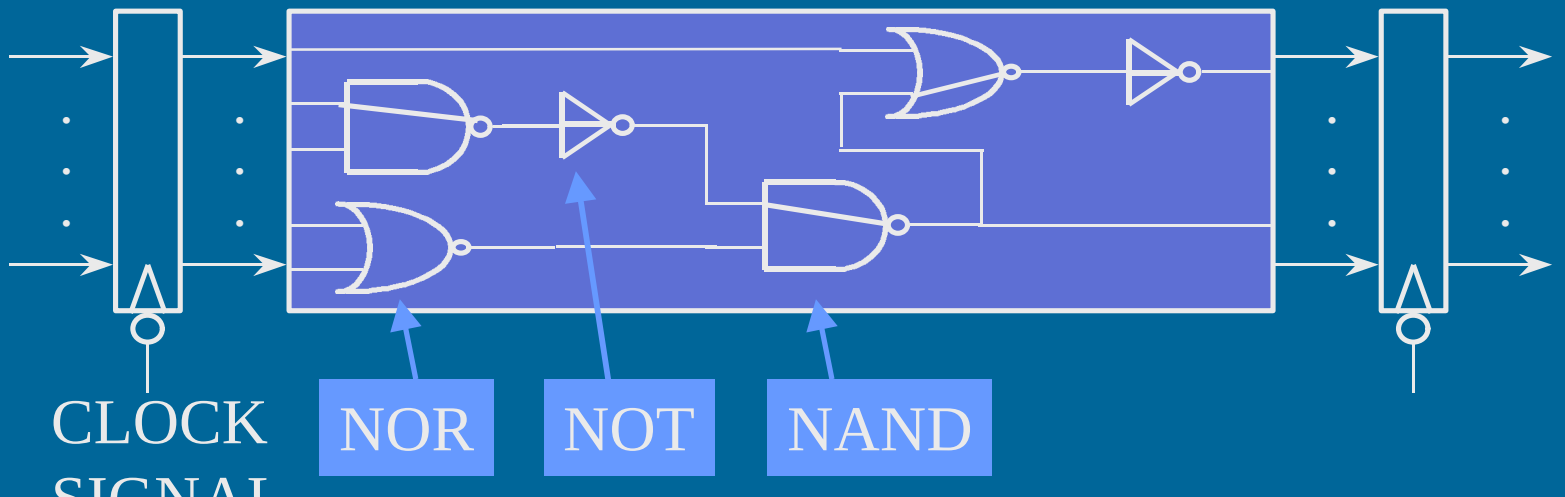
TiTo: What happens is system

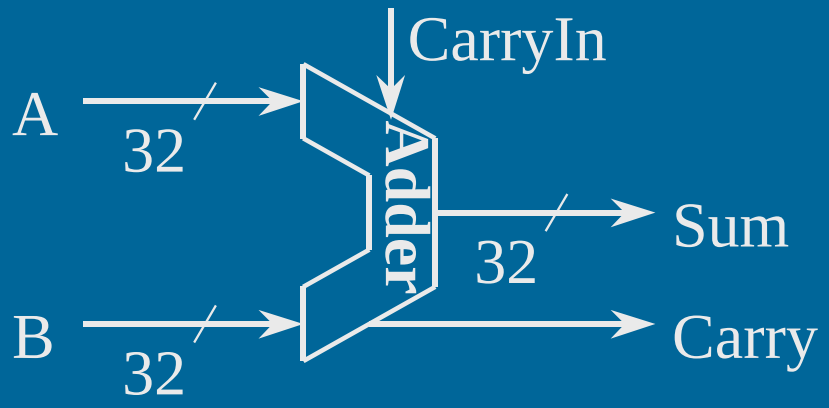
TiKRa: How are CPU & memory implemented?

The Lowest Presentation Level for Comp Org I (TiTo)



The Lowest Presentation Level for Comp Org II (TiKRa)





Contents

- Computer system - overall structure (Ch 1-7)
- System buses (Ch 3)
- Digital logic (App A)
- Memory hierarchy (Ch 4.3, 7.4)
- Computer arithmetic (Ch 8)
- Instruction sets (Ch 9-10)
- CPU structure and function (Ch 11)
- Reduced Instruction Set Computers (Ch 12)
- Instr. level parall. and superscalar proc. (Ch 13)
- Control unit (Ch 14-15)