581365-8
Computer Organization II
(Tietokoneen rakenne)

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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.
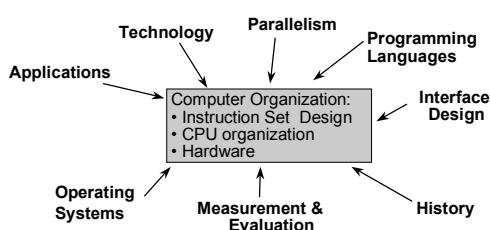
Peripheral topics

Related Courses
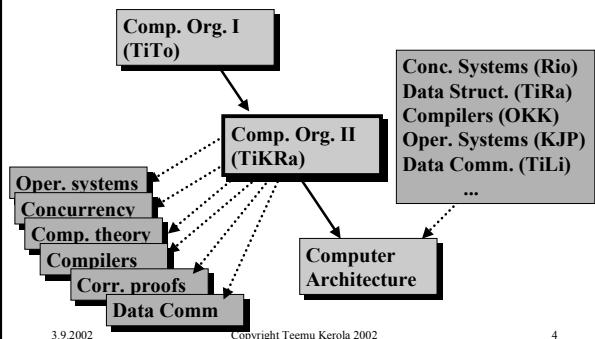
Notice

- 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")

TiKRa Fall 1999 exam vs. homework points (hwp)

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**TiKRa Fall 2000 exam vs. homework points (hwp)**

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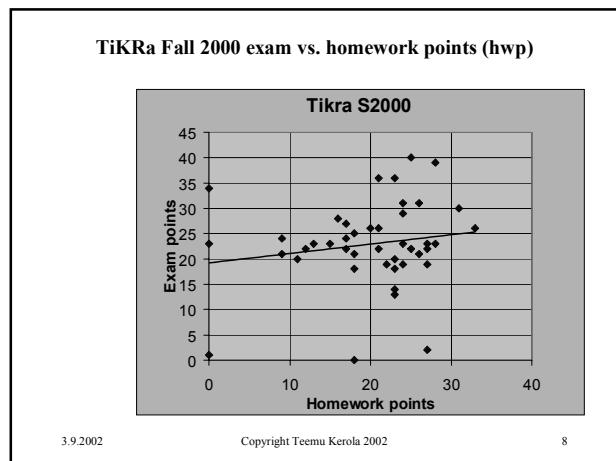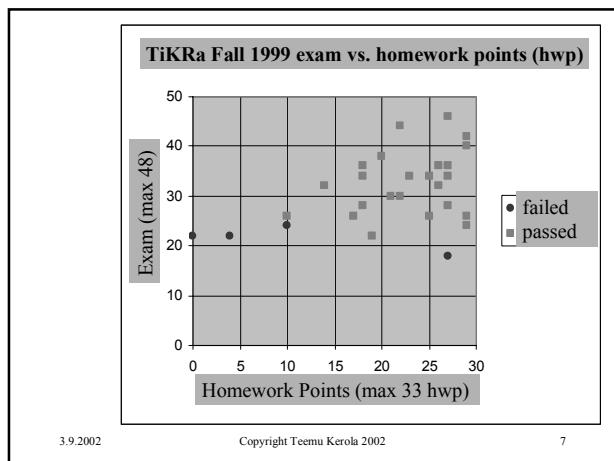
WWW Information

- Course home page
  - *http://www.cs.helsinki.fi/Teemu.Kerola/tikra/*
- This semester schedule
  - *.../tikra/S2002/aikataulu.html*
- Lectures   *.../luennot/*
- Homeworks   *.../laskuharj/*
- Old exams   *.../tikra/kokeet/*
- Newsgroup   *hy.opiskelu.tktl.tikra*

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Comp. Org. I (TiTo, Tietokoneen toiminta)

A := B + C;
High level language

↓

MOV AX, B
ADD AX, C
MOV A, AX
Assembler

Comp. Org. II (TiKRa, Tietokoneen rakenne)

↓

Logic circuits

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TiTo: What happens is system

TiKRa: How are CPU & memory implemented?

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The Lowest Presentation Level for Comp Org I (TiTo)

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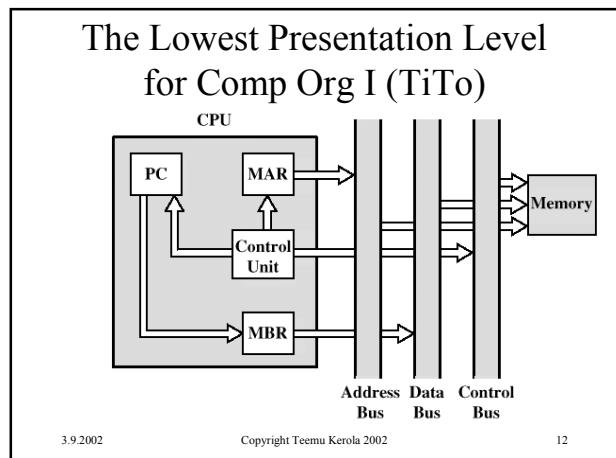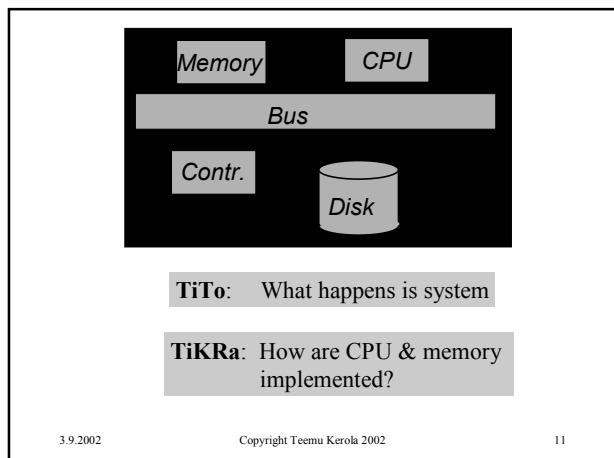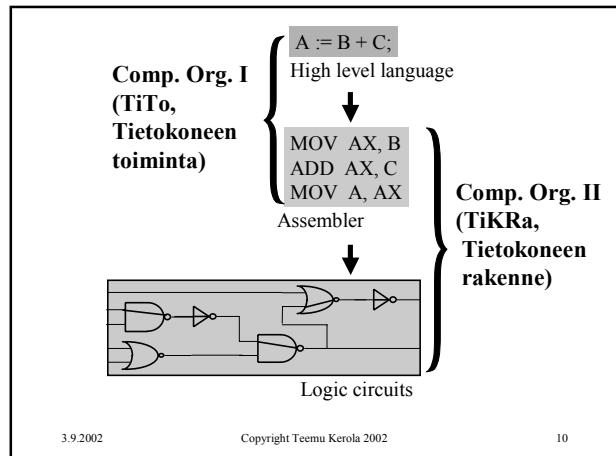
The Lowest Presentation Level for Comp Org II (TiKRa)

CLOCK SIGNAL   NOR   NOT   NAND

A 32
CarryIn
Adder
Sum
32
B 32
Carry
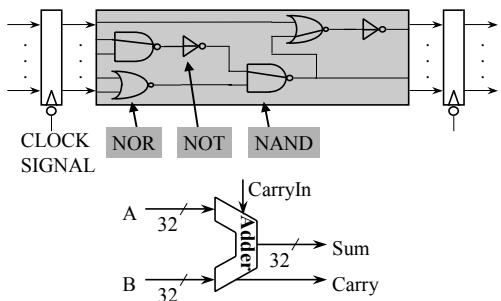
Contents

Text book: Stallings, Computer Organization & Architecture, 6th Ed., 2003   Old text book: 5th Ed, 1999

- Computer system - overall structure (Ch 1-8)   (Ch 1-7)   5th Ed, [Stal99]
- System buses (Ch 3)   (Ch 3)
- Digital logic (App A)   (App A)
- Memory hierarchy (Ch 4.3, 8.3)   (Ch 4.3, 7.3)
- Computer arithmetic (Ch 9)   (Ch 8)
- Instruction sets (Ch 10-11)   (Ch 9-10)
- CPU structure and function (Ch 12)   (Ch 10)
- Reduced Instruction Set Computers (Ch 13)   (Ch 12)
- Instr. level parall. and superscalar proc. (Ch 14)   (Ch 13)
- Control unit (Ch 16-17)   (Ch 14-15)