

**RUTGERS**

Rutgers Business School  
Newark and New Brunswick

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**Accounting Information  
Systems**

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## **A.I.S. Class 24: Outline**

- Learning Objectives for Chapter 3
- Hardware
- Software
- Systems Configuration
- Group Work for Chapter 3

## **Learning Objectives for Chapter 3**

- After studying this chapter you should be able to:
  - \* describe various information technologies used for data input
  - \* explain in some technical detail the components of a computer system
  - \* explain the technologies used to process data
  - \* describe alternative computer output technologies

## **Learning Objectives for Chapter 3**

- After studying this chapter you should be able to:
  - \* distinguish between systems software and applications software
  - \* describe the categories and functions of systems software
  - \* describe the categories and functions of applications software
  - \* briefly describe the issues surrounding systems configurations.

## Hardware

- Input Technology
- Processor Technology
  - \* Hardware Performance
- Storage Technology
- Output Technology

## **Input Devices**

- Keying devices (on-line or off-line, wireless)
- Mouse (trackball, trackpad, trackpoint, wireless)
- Light pens
- Touch screens
- Audio & video input
- Bar code scanners, OCR & MICR
- POS devices
- RFID
- Scanners

## Processor Technology

- A key idea discussed here is the *internal bus* or *system bus*
- This is a communication channel, or data path, that connects the CPU and the memory unit
- The system bus has three main parts
  - \* Data bus – transmits data
  - \* Address bus – transmits addresses of memory locations
  - \* Control bus – transmits control signals (e.g., read, write, etc.)
- The Central processing UNIT (CPU) has three main parts
  - \* Arithmetic-logic unit (ALU) – does the actual computation
  - \* Control unit (synchronized to the internal clock)
  - \* Registers
    - A *register* is a high-speed memory location inside the CPU

## Processor Technology

- CPU (registers, control unit, ALU)
- Clock
- Cache memory
- Data bus, address bus, control bus
  - \* Speeds 800 MHz – 1333 MHz
- ISA, PCI, USB, FireWire, Bluetooth
- Processors
  - \* 8088, 8086, 80186, 80286, 80386, 80486 DX & SX
  - \* Pentium, Pentium Pro, Pentium MMX, Pentium II, Pentium II Xeon, Celeron, Pentium III, Centrino, Pentium 4 (with Hyperthreading - 3.8 GHz), Pentium D (3.6 GHz), Intel Core 2 Duo (3.0 GHz), Intel Core 2 Extreme (Quad Core, 3.2 GHz), Intel Core i7 Extreme (3.33 GHz), Intel Atom (for netbooks – 2.0 GHz)
  - \* AMD Duron, AMD Sempron, AMD Turion 64 Mobile, AMD Athlon 64 X2 Dual-core, AMD Opteron, AMD Phenom II X4 (3.4 Ghz true quad core)
  - \* Motorola PowerPC G4 (RISC)

## Storage Technology

- ROM, RAM, DRAM, SDRAM, ECC, DDR SDRAM, RDRAM, SRAM, Cache, Flash memory
- Magnetic tape
- Hard disks, floppy disks
- EIDE (Ultra ATA), SATA, PATA, Ultra & Ultra2 SCSI
- Iomega ZIP drives
- Portable hard drives
- USB drives (micro, pen, thumb, flash drives)
- CD-ROM, CD-R, CD-RW
- DVD, DVD-R/W, DVD+RW, DVD-RAM
- (HD-DVD now abandoned), Blu-ray

## Output Technology

- **Printers**
  - \* Dot matrix
  - \* Ink jet
  - \* Laser
- **Video display**
  - \* PCI v AGP
  - \* VGA (640 x 480)
  - \* SVGA (800 x 600)
  - \* XGA (1024 x 768)
  - \* SXGA (1200 x 1024)
  - \* UXGA (1600 x 1200)
    - WUXGA (1920 x 1200)
    - WQUXGA (3840 x 2400)
  - \* TFT
  - \* HDTV
- **Sound cards, MIDI interfaces**

## Software

- Systems Software
- Programming Languages
- Application Software
  - \* General Purpose
  - \* Special Purpose

## **Systems Software**

- **Operating systems**
  - \* multitasking, multiprogramming, multiprocessing
  - \* DOS, WINDOWS 3.1, 95, 98, ME, NT, 2000, XP, Vista
  - \* OS/2 Warp 4, Mac OS-X (Tiger, Leopard), Unix, Linux
  - \* GUIs (as opposed to CUI)
- **Utilities (e.g., virus-scans, disk formatters)**
- **Language translators**
  - \* assemblers, compilers, interpreters
- **Debuggers**

## Programming Languages

- First, second, third, fourth generation
- Object-oriented programming languages (JAVA, C++, C#)
  - \* encapsulation
  - \* polymorphism
  - \* Inheritance
- Functional programming languages (Scheme, ML, OCaml, F#)
- Scripting (PERL, VBScript, JavaScript, Python, ASP, JSP, PHP)
- Frameworks (.NET, Ruby on Rails)
- Ajax (Asynchronous JavaScript and XML)
- IDEs (NetBeans, Eclipse, IDEA, Visual Studio)

## **Application Software**

- **General purpose**
  - \* **word processing**
  - \* **spreadsheets**
  - \* **presentation graphics**
  - \* **flowcharting**
  - \* **databases**
  - \* **communication**
  - \* **organizers**

## Application Software

- **Special purpose**
  - \* **low-end accounting packages**
    - Quicken, Quickbooks Pro, Microsoft Money, PEACHTREE
  - \* **mid-range packages**
    - Microsoft Dynamics (formerly Great Plains), ACCPAC Pro, Platinum
  - \* **high-end packages**
    - SAP
    - Oracle (now including PeopleSoft, JD Edwards)
    - BAAN (now SSA Global)

## **Systems Configurations**

- Supercomputers
- Mainframes
- Minicomputers
- Servers
- Workstations
- Desktops
- Laptops (notebooks)
- Palmtops (PDAs)

## **Group Work for Chapter 3**

- Discussion Questions
- Problems and Exercises 3