

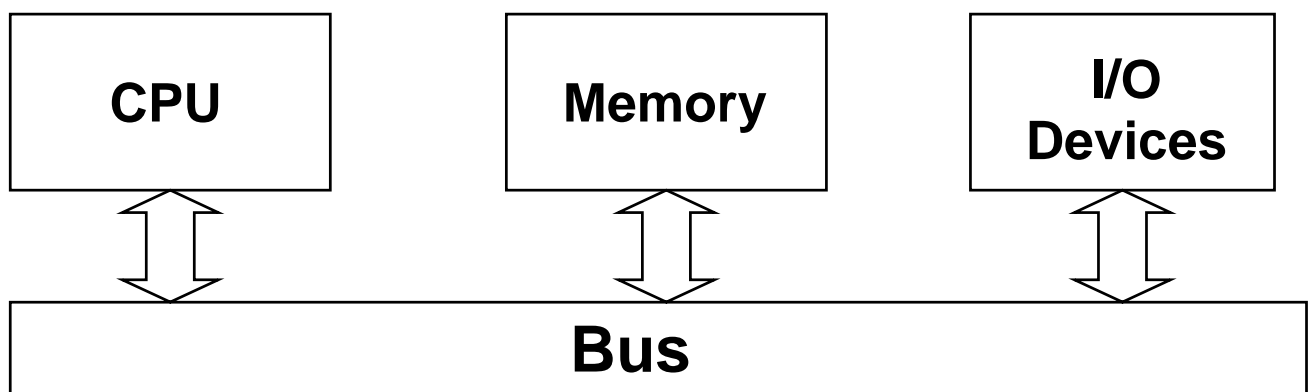
# EE102: Software Engineering I

## Section 2 – Software and Hardware

### Computer components:

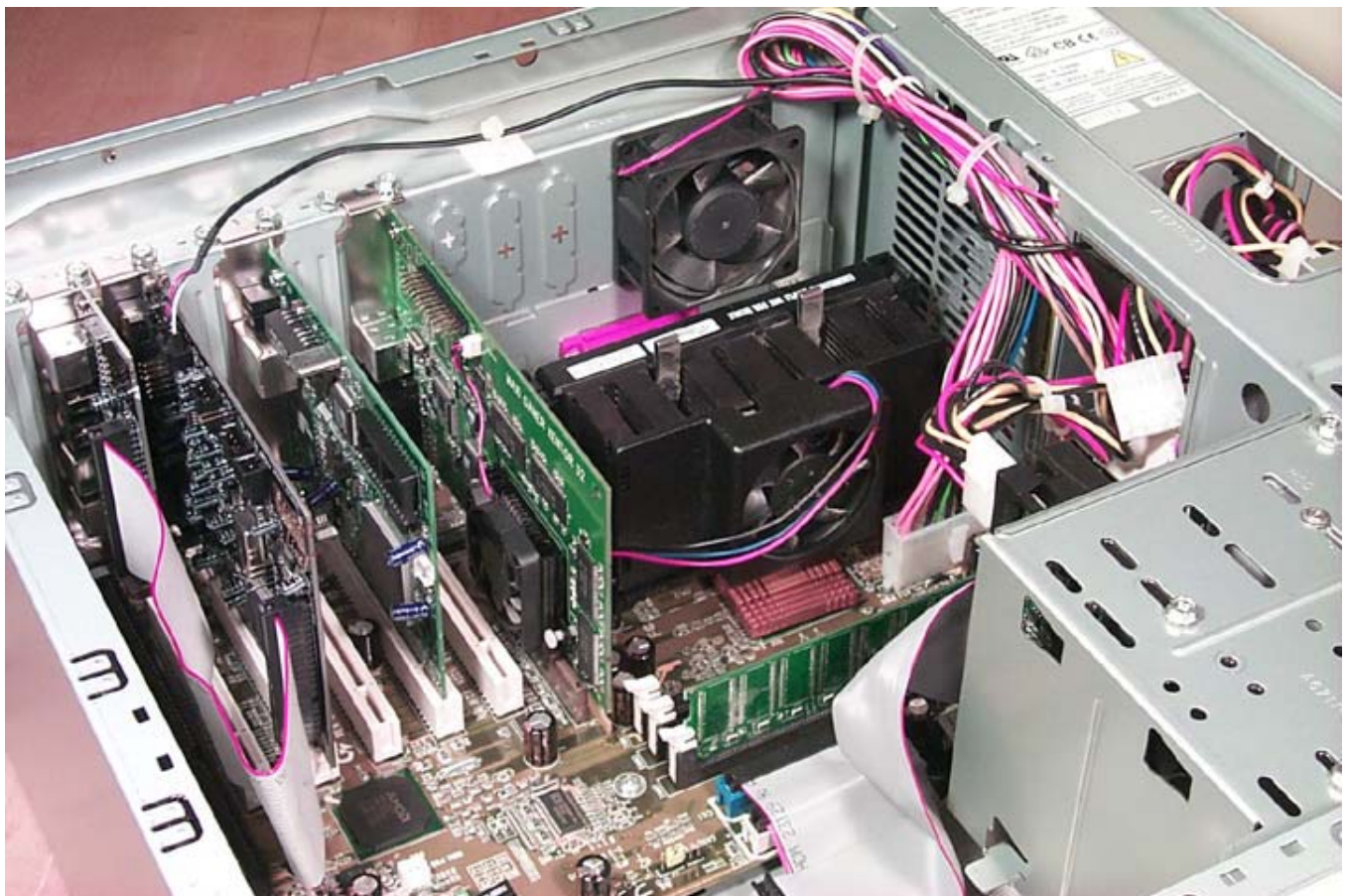
- Hardware
  - Collection of all physical components (i.e. mechanical, electronic) a computer is made of
- Software
  - Collection of all computer programs that enable the computer to perform

### Hardware components



Von Neumann computer architecture

- **CPU (Central Processing Unit)**
  - Computer “brains”
- **Memory**
  - Internal (runtime, volatile)
  - External (hard-disk, non-volatile)
- **I/O Devices (Input/Output Devices)**
  - Monitor
  - Keyboard
  - Mouse
  - Printer
  - Joystick
- **Auxiliary Storage Devices**
  - Floppy disks
  - Zip disks
  - CD-ROM, CD-RW
  - DVD-ROM, DVD-RW
- **Additional Cards**
  - TV Tuner
  - Multimedia (MPEG) encoding cards



## Software components:

- **Operating System (OS)**

- Very special and powerful computer program
- Controls the operation of the whole computer system (hardware and software)
- Controls system resources: memory, peripheral equipment, data transfer, etc.
- Provides support for running other programs
- Enables input and output of data
- There are many OS: DOS, Windows (95, 98, NT, 2000, XP), UNIX, Linux, OS/2, etc.

- **Drivers**

- Computer programs that are delivered with certain hardware
- Allow the OS to recognise and work with that particular piece of hardware

- **Various Applications/Programs**

- Computer programs that provide specialised functionality
- There are many applications/programs and many companies that produce them:
- Microsoft Internet Explorer and Netscape Navigator (navigating the Internet)
- Pine and Outlook Express (reading e-mail)
- Pico and Microsoft Word (for document editing)
- Paint Shop Pro and Adobe Photoshop (for image processing)
- Gcc and Borland C (for compiling C programs)

## **What is a computer program?**

- **A set of commands to be executed by a computer in certain order**