Hardware and Software Basics

Numbers

1,024 bytes, roughly 1 thousand, “kay”
= 1 kilobyte = 1KB = 2^10
1,048,576, roughly 1 million, “meg”
= 1 megabyte = 1MB = 2^20
1,073,741,824, roughly 1 billion, “gig”
= 1 gigabyte = 1GB = 2^30
1,099,511,627,776, roughly 1 trillion
= 1 terabyte = 1TB = 2^40
1,125,899,906,842,624, roughly one quadrillion
= 1 petabyte = 1PB = 2^50

Hardware Definition

The parts of a computer system that can be kicked.

Hardware

- Input
  - Keyboard
  - Mouse / trackball
  - Scanner
  - Touch screen
  - Biometric device
  - Microphone
  - Video capture board

- Process
  - CPU
  - Graphics accelerator

- Output
  - Monitor
  - Printer
  - Plotter
  - Speaker

More Hardware

- Storage
  - RAM
  - ROM
  - Floppy disk
  - Hard disk
  - CD-ROM / CD-RW
  - DVD
  - Zip, Jaz
  - LS-120
  - Tape

- Data communication
  - Modem
  - Cable modem
  - DSL modem

- Interface
  - Serial or parallel port
  - SCSI
  - USB
  - FireWire
  - Network

Last Of The Hardware

- System board
- Case
- Power supply / fan
- Other, specialized adapter cards
Floppy Disks

- 5.25"
  - low density 360KB
  - high density 1.2MB
- 3.5"
  - low density 720KB
  - high density 1.44MB
  - extra high density 2.88MB
- ZIP 100 / 250 / 750MB
- LS-120 120MB

Typical Hard Disk Sizes

- 40 GB
- 60 GB
- 80 GB
- 120 GB
- 160 GB

Software

- System
  - ROM BIOS
  - PC DOS / MS DOS
  - OS/2
  - Unix, Linux
  - Windows NT, 2000, XP
- Environment
  - COMMAND.COM
  - Windows 3.1/95/98/ME
  - Presentation Manager
- Device driver
  - MOUSE.DRV
  - AOATAPI.DRV
- Compiler
  - Java
  - C++
  - Visual Basic
  - COBOL

Application Software Examples

- Spreadsheet
  - Excel
  - Lotus 1-2-3
- Word processor
  - Word
  - WordPerfect
- Database
  - Access
  - Approach
- Browser
  - Internet Explorer
  - Netscape Navigator
- Presentations
  - PowerPoint
  - Corel Presentations
- Utility
  - Norton
  - McAfee

Aptitude Test

If you can read this, you can get a good job in computing.

Hardware vs Software

- Hardware
  - Tangible
  - Touch it
- Software
  - Intangible
  - Algorithm
  - Expression of thought or idea
  - Instructions that control hardware
  - Embodied / contained in hardware
Computer

- Hardware + software
- Software tells hardware what to do
- When computer is powered up
  - Operating system is loaded (copied) from disk into RAM by the ROM BIOS program
  - Operating system, in turn, loads other software from disk to RAM as needed

Under $1,000 Today

- Intel P4 CPU @ 1.5 GHz / AMD Athlon 2100+
- 512 MB RAM
- 80 GB disk
- DVD-ROM
- CD-RW
- 19” CRT monitor
- AGP video card w/64 MB
- Pair of speakers + subwoofer
- Windows XP Pro & Office XP Pro

Personal Printers

- Color Inkjet Free to $500
- Monochrome Laser $250 to $800
- Color Laser $800 to $2,000

Popular Abbreviations

- BIOS Basic Input / Output System
- CPU Central Processing Unit
- NIC Network Interface Card
- RAM Random Access Memory
- ROM Read-Only Memory
- SCSI Small Computer System Interface
- USB Universal Serial Bus