

Computer Know How Series

Presented by Adam Lacey ([Applications Etc.](#)) 916-813-7819

Basics of how a computer works. – Thursday February 13th 2020 @ 2pm

<http://www.aehost.net/morpd> or <http://www.morpd.com>

Your computer is very complex and has many components that do a variety of operations. Comparing your computer to familiar functions that we use in an office will make it easier to understand. We'll reference a desktop computer to discover the devices and components, but all your devices work with the same functionality. Every computer is like a big calculator and all it knows how to do is binary math.

1) Standard PC (Personal Computer) Devices

- a. **Computer/Tower/Box/Case Components** – This case is commonly but incorrectly called the CPU or hard drive.
 - i. **Motherboard** - The main circuit board that connects the various components in your system. Today it also integrates many functionalities like USB (Universal Serial Bus), sound, network, video and other connectivity.
 - ii. **Processor - CPU (Central Processing Unit)** - The main processor is the component that calculates everything.
 - iii. **Memory - RAM (Random Access Memory)** - Short term storage for data that is currently open. This can be related to the physical desktop of your office desk.
 - iv. **Storage - HDD (Hard Disk Drive) or SSD (Solid State Drive)** - Long term storage for all the files and folders on the computer. These can be related to the file cabinet in your office.
 - v. **Video – GPU (Graphics Processing Unit)** - Output device to provide an image to your monitor. Sometimes integrated to the motherboard.
- b. **Display/Monitor/Screen**
 - i. The monitor is essential for us to see everything the computer does. They come with various connection types and screen sizes.
- c. **Input Devices/HID (Human Interface Device)**
 - i. **Keyboard** – entry devices for text and commands to control the system. Keyboards come in different sizes and have changed over the years, but standard desktop keyboards are 101 keys in the QWERTY layout. This layout describes the organization of the keys (QWERTY is shown in top row).
 - ii. **Mouse** – This XY Position Indicator (patented name) is a control device to point and select objects in a GUI (Graphical User Interface). This device is now common but during the era of CLI (Command Line Interface) it was not necessary. Today, a mouse is still not required to operate the computer.
 - iii. **Scanner** – device that allow imaging of a physical document/photo and digitizes it.
- d. **Output devices**
 - i. **Printer** – device that creates a physical item of a digital item (document or image)

2) Software/Firmware

- a. **BIOS (Basic Input Output System)** – The BIOS firmware is code that controls all the hardware devices.
- b. **Operating System** – No matter the manufacture the operating system, this software provides the interface for applications (API - Application Programming Interface) and the user to control the hardware.
 - i. Examples - Microsoft Windows, Apple macOS & iOS, Google Android & Chrome OS, Linux, etc.
- c. **Applications** – purpose-built software for completing a function. Different categories are available; Internet Browser, Office Productivity, Accounting, Communication, Image Editing, etc.