Supplementary Notes:
Components of a Computer - Hardware

Introduction

A computer is a complex machine that contains many different components. Last week we have learned some components that are visible to you, but there are many more components inside the casing of the computer. For today's class, we are going to look into the components found inside the computer.

CPU

- The CPU, or central processing unit, is the brain of the computer. The CPU controls all the action that occurs inside the computer.
- CPUs come in different types and speeds. The different types include: 386, 486, 586, 686, K5, K6, K6 MMX, Pentium, Pentium Pro, Pentium MMX, and Pentium II.
- Intel, AMD, and Cyrix are the three main manufacturers of CPU chips. Intel makes the Pentium line of products, AMD makes the K5 and K6 line of products, and Cyrix makes the 686. The Pentium II is the industry standard, but are quite a bit more expensive.

Processor Speed

- The speed of the chip is indicated after the DX or SX on a 486, and after Pentium on the Pentium. For example a 486DX-33 runs at 33 MHz. MHz stands for Megahertz, which put simply, is how fast the computer runs.
- The higher the Megahertz, the faster the computer. There are many speeds available. For the 486 the following are available: 486SX-33, 486DX-33, 486DX2-66, 486DX4-100, and 486DX4-120, 486DX4-133.

RAM (Memory)

- RAM, **R**andom **A**ccess **M**emory, is commonly referred to as memory. Memory is measured in Megabytes, abbreviated MB.
- RAM is used by the computer as a temporary storage area for the things it is using. Any data that you are using or inputting is temporarily stored in the RAM, where it can be called and used by the computer.
- As for how much, more is better. The more RAM you have, the faster the computer can perform tasks. The minimum amount of RAM you should have is 16 megabytes. The standard now is 32 megabytes.
- As computers improve, they seem to need more memory, and 64 megabytes will surely be considered standard in the future. RAM is easily **upgradeable**.
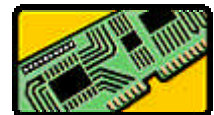
Cache

- Cache is another type of memory which is similar to RAM. Cache is used by the computer to move data between the RAM and the CPU faster.

Motherboard

- The motherboard is the circuit board which everything in the computer plugs into. The CPU, RAM chips, and Cache all plug into the motherboard.

Video Card

- The video card is the part of the computer that sends the images to the monitor. Video cards are also referred to as video accelerators.
- Video cards usually contain their own memory chips. This memory helps the computer to load images faster. A video card should contain at least 1 megabyte of memory, but 2 megabytes is becoming standard. 4 megabytes is quite a bit more expensive, but is even better.

Sound Card

- Most computers comes standard with a sound card. A sound card allows your computer to play music, sounds, and voice.
- This is a must if you are going to play multimedia games. If you are just using your computer for business, then you may not need a sound card.
- The market standard for sound cards is the *Sound Blaster*. Almost all sound cards sold in the market are Sound Blaster compatible sound card.
- Most sound cards also have an input for a microphone so that you can record your own voice.

Disk Drives

There are several types of disk drives: Hard drives, Floppy disk drives, CD ROM drives.

Hard Drive

- The hard drive is where most of your programs will be stored. The hard drive is inside the computer, so you won't be able to see it, but it is a very important part of a computer.
- Hard drives come in many different sizes, up to about 16 gigabytes.
- The standard size for a hard drive now is around 4 gigabytes. The more programs you have, the more disk space you will need.

Floppy Disk Drive

- Every computer comes with a floppy disk drive. They are the main way of putting information on to the hard drive. They also allow you to save information on a disk, which is an easy way to transport files and data between different computers.
- There are two different sizes of floppy drives. The 5.25" floppy disk is not used very often any more. It has been replaced by the 3.5" disk, which is smaller and can hold more information. A 3.5" high density disk can hold 1.44 megabytes of data.

CD ROM Drive

- Most computers now come standard with a CD ROM drive. Most programs and games now come on CD. Many programs are being put on CD's because they can hold over 500 megabytes of data on a single disk.
- A CD ROM drive reads data from a CD that looks much similar to a music CD, except it holds data rather than music. Much like music CD's, CD ROMs cannot be written to, so you cannot save information to a CD ROM.
- The CD ROM drive comes in several different speeds. Speeds vary from double speed to 32X speed.

Networking

NIC (network interface card)

A network interface card (NIC) is a computer circuit board or card that is installed in a computer so that it can be connected to a network. Personal computers and workstations on local area networks (LANs) typically contain a network interface card specifically designed for the LAN transmission technology, such as Ethernet or Token Ring. Network interface cards provide a dedicated, full-time connection to a network. Most home and portable computers connect to the Internet through as-needed dial-up connection. The modem provides the connection interface to the Internet service provider.

Modem (modulator/demodulator)

A modem modulates outgoing digital signals from a computer or other digital device to analog signals for a conventional copper twisted-pair telephone line and demodulates the incoming analog signal and converts it to a digital signal for the digital device.

In recent years, the 2400 bps modem that could carry e-mail has become obsolete. 14.4 Kbps and 28.8 Kbps modems were temporary landing places on the way to the much higher bandwidth devices and carriers of tomorrow. From early 1998, most new personal computers came with 56 Kbps modems. By comparison, using a digital ISDN adapter instead of a conventional modem, the same telephone wire can now carry up to 128 Kbps. With Digital Subscriber Line (DSL) systems, now being deployed in a number of communities, bandwidth on twisted-pair can be in the megabit range.

Power Supply

The device that change the power from the wall outlet to a suitable power. This is needed because the various components on the computer must each receive certain power level.