Level 2: History of Computer Components

1. Research the history of the “CPU Chip”. Make notes on the following:

a. When was the first CPU chip released (e,g, 8086) and who made it and what did it contain.

Intel 4004 made by Intel on November 15, 1971 it contained a 4-bit, 16-pin microprocessor that operated at a mighty 740KHz.

Sebastian Anthony on November 15, 2011 at 12:45 am Comment. “Intel 4004, the first CPU, is 40 years old today.” ExtremeTech, 15 Nov. 2011, www.extremetech.com/computing/105029-intel-4004-the-first-cpu-is-40-years-old-today.

b. What is an “Integrated Circuit” and how were computers made before ICs?

Integrated circuits (ICs) are a keystone of modern electronics. They are the heart and brains of most circuits. They are the ubiquitous little black “chips” you find on just about every circuit board.An IC is a collection of electronic components – resistors, transistors, capacitors, etc. – all stuffed into a tiny chip, and connected together to achieve a common goal. They come in all sorts of flavors: single-circuit logic gates, op amps, 555 timers, voltage regulators, motor controllers, microcontrollers, microprocessors, FPGAs…the list just goes on-and-on.

Integrated Circuits, learn.sparkfun.com/tutorials/integrated-circuits.

c. How have CPU chips evolved since the 8086?

Chips have become faster and the performance had evolved. Since the 8086 chip there has been a chip called the 80286 which doubled the performance of the 8086. The 8086 was made with 134 thousand transistors and then the intel 386 chip came out with more than 275 transistors. This chip was the first 32 bit processor. Then the intel 486 chip came out and it had 1.2 million transistors and could hold up to 4gb of memory.

2. Research the history of “Computer Memory”. Make notes on the following:

a. How is RAM memory used in PCs different from “Core Memory” used on early computers.

Ram memory in early computers had the data stored on hard drives where as core memory on early computers had it stored by using electrical data.

b. What is “Moors Law” and how has RAM memory followed this law?

Moore’s law is an observation that was made by the Intel co-founder Gordon Moore in 1965. The law is that every year the number of transistors per square inch on a integrated circuit will double each year. RAM follows this law because computers are evolving every year and computers aren’t being slown down to computer space because computers are gaining memory space.

c. How is RAM memory different from external memory (e.g. hard disks)?

RAM memory uses electricity to store all the data and when the computer is powered all the data is gone. External memory keeps all the memory so it can be used for later times and it is not deleted right away. RAM sizes tend to be a lot smaller from around 256MB to 32GB where as external memory is 500GB to 8TB.

d. How has RAM memory evolved over time?

RAM was invented in the late 1960s. Back then people were trying to make the RAM smaller while having more memory and they tried making different types of RAM (Dynamic RAM). Dynamic RAM was more often found in computers back then. Now people are trying to create RAM that does not clear the data off the computer.

3. Research the history of “Video Cards”. Make notes on the following:

a. What is VGA, when was it introduced and what features did it have?

VGA stands for Video Graphics Array. It was made by IBM in 1987. The first one had 640 x 480 resolution colour display and a refresh rate of 16Hz and 16 display colours.

b. What came before VGA graphics?

The EGA came out before the VGA and it stands for Enhanced Graphics Adapter. The resolution was 640 x 350.

c. When were 3D graphics cards introduced and what were the first 3D cards like?

The first 3D graphics cards were made in 1995 and had to be plugged into expansion slots.

d. How have graphics cards evolved over time?

The graphic cards are getting smaller yet more productive and useful. The manufactures also are upgrading PCB components and experimenting with cooling equipment. some early graphic cards were the Monochrome Display Adapter made by IBM in 1981 and then Intel made the Intel’s iSBX 275 Video Graphics Controller Multimode Board. Then in the 1990s they made the 3DFX Voodoo1 in 1996 with a 3d processor. In 2016the Nvidia GeForce GTX 1080 was made.