Free essay on computer evolution 1960-1970

The term computer has its roots in the Latin word computare, which means to estimate, count, reckon or compute. Computers have however evolved to perform far more functions than just computing numbers. Three centuries have gone by that have been dominated by major changes in technology and produced numerous devices that to date have made life for humankind much easier. The 18th century saw the start of the industrial revolution supported by great mechanical systems. The 19th century was the era of the steam engine that led to present day trains. The 20th century saw perhaps one of the greatest inventions to date the computer. The computer has had a great impact on the way we communicate, work, and live.

Advances in Personal Computers

The personal computer is a general-purpose system that is small, self contained and designed to provide the capabilities of a minicomputer in a package of reduced size. It is based on large-scale circuit integration. Personal computers have memories smaller than those that minicomputers have and are able to support fewer peripheral devices attached to them. Personal computers have a variety of software application such as word processors, desktop publishers, databases, web browsers, and e-mail clients, games and spreadsheets. They also allow for internet connection enabling the use to access the World Wide Web (Blaauw and Fredrick 125).

The personal computer can be a workstation, a desktop computer, a gaming computer, a nettop, a single unit personal computer, a home theater PC, a tablet, a desktop replacement, a laptop, a netbook, an ultra-mobile PC, and a pocket PC. The laptops, netbooks, pocket PCs, ultra-mobile PCs and tablets are the latest steps toward computer miniaturization. As computers become

vital to the everyday life of an individual, it is important to be able to have access to a computer anytime and anywhere. The small size and portable nature of these innovations make this a reality. Another clear advantage is that the devices are battery operated and can therefore, unlike desktop computers, be used even during power blackouts or when one has to go to an area where electricity is unavailable.

The capabilities, size, and price of a personal computer make it suitable for use by individuals who operate it as the end-user with no computer operator to intervene. Early PC users had to write their own programs to enable them to perform various functions on their computers. Presently, many companies like Microsoft have become market leaders by providing ready-to-compile or ready-to-use commercial software to the perceptive computer user.

The history of the personal computer started in the early 1970s. Most people in research and academic institutions had the opportunity to use a computer system in interactive mode for single-person use. These computer systems were still too expensive to be owned by one person. Microcomputers, early personal computers, were generally a reserve for technicians and hobbyists. They were sold in kit form and minimal programming could be performed with toggle switches while front panel lamps provided the output. The Altair 8800 computer kit was one of the earliest personal computers. The kit could be purchased and assembled to make one's own personal computer.

The development of the microprocessor turned the computers into consumer goods that were affordable due to the lower manufacturing costs. The microprocessor, invented by Ted Hoff, was a chip the size of a pencil eraser that could perform all the computing and logic work of a computer.

The minicomputer, which was the predecessor of the personal computer, used integrated circuit technology. This meant that processing was done by circuits with components that are large and arranged on many large circuit boards in print. A minicomputer was hence expensive to produce and too large. When the microprocessor was commercialized, the cost necessary to produce one computer system dropped drastically, making it affordable for an individual.

The earliest version of a non-kit microcomputer based on a microprocessor was the Micral N, which had the Intel 8008 microprocessor. It was built first in 1972 and sold 90, 000 units. The Commodore PET, introduced in 1977, was the first successfully much marketed personal computer followed by the Apple II. Steve Wozniak and Steve Jobs of Apple Computer marketed and sold both the Apple I and the Apple II. The Apple II was marketed as a full computer in that it had a complete QWERTY keyboard, color graphics, and internal expansion slots mounted on a streamlined plastic case. The monitor and the I/O devices were sold separately (Blaauw and Fredrick 138).

The Apple II was followed by the introduction of the TRS-80 by the Tandy Corporation into the market. This model had the motherboard and the keyboard combined into one unit and boasted a separate power supply and monitor. The TRS-80 was sold by RadioShack, which accounted for its widespread distribution and sales although both the Apple II and the PET had more advanced features.

As the prices of computer components continued to fall, more and more companies started manufacturing computers. This led to the increase in low-cost machines, known as home computers, such as the Atari 400/800, the

Texas Instruments TI-99/4A, the VIC-20 and the Commodore 64 and the BBC Micro.

Computers that were ready assembled and mass marketed allowed more people to use computers. These users focused more on the software applications that would allow them to perform a myriad of functions with their PCs rather than on processor hardware development. This meant that the computer companies started to make computers for household use that had software aimed at games, programming and personal productivity.

With the entrance of the IBM PC into the personal computer market, the distinction was lost between home computers and personal computers. The traits of both types of computers were interchanged and merged with previous features meaning that the business computers, home users, and games systems users had the same color graphics capabilities, sound capabilities, processors, and operating systems. The graphics capabilities and memory of mass-market computers were comparable to workstations of a couple of years earlier and local area networking became a standard feature of personal computers used in the home.

After the IBM PC came the Apple Lisa, which was a microcomputer from Apple, computers that had a graphical user interface. The computer with its slow speed and high price did quite poorly in the market. The Macintosh was next and the market's first successful mouse-driven computer with a graphical user interface.

The personal computer has seen the addition of many more features through the years aimed at increasing performance and overall satisfaction for the user. Some of these features include the CD-ROM, the zip disk, the USB

ports, DVD player, Wi-Fi, flash memory, multi-core processors, and LCD monitors.

History of Computers (1960-1970)

The year 1959 marked the beginning of the era of the transistor, the second-generation computers, and a new chapter in the world of computers. The transistor was developed at AT & T's Bell Laboratory by three engineers namely William Shockley, Walter Brattain, and John Bardeen. The transistor was developed to replace the vacuum tubes in almost all its applications such as relaying and switching electronic signals.

The transistor was more superior to the vacuum tube in a number of ways. Aside from the fact that it was cheaper to build than the vacuum tube, the transistor was in many ways more reliable, faster, and much smaller. The transistor was found to conduct electricity faster and more efficiently than the vacuum tubes. They barely gave off any heat and utilized energy well. In terms of numbers and quantity, forty vacuum tubes could be replaced by one transistor meaning that the cost of making computers was drastically reduced (Blaauw and Fredrick 148). The transistors were made of silicon, which is a very abundant material found in beach sand, and glass, making the production of transistors a cheap undertaking. This in turn meant that the use of transistors in second-generation computers made them more prolific, faster, and more reliable than first generation computers.

The second-generation computers were characterized by printed circuit boards mounted with transistors, magnetic tapes and punched cards used for the input of data, magnetic tapes used for secondary storage, orientation towards concurrent multiple users, less consumption of power and

generation of less heat as compared to first-generation computers and development of high level languages like FORTRAN, COBOL and others. Though the transistors were a major milestone in advancing the computer, the real breakthrough came in 1965 in the form of the integrated circuit, ICs, as opposed to individual transistors. The integrated circuit, also know as the semiconductor chip, packs millions of transistors onto a single silicon wafer. It contains all of the transistors on the same base, or substrate material, and connects the transistors wirelessly. Two individuals of two separate companies discovered, independently, the wonderful properties of integrated circuits. The two individuals responsible for the innovation that is the integrated circuit were Jack Kilby of Texas Instruments and Robert Noyce of Fairchild Corporation (Blaauw and Fredrick 157).

The integrated circuit was used to develop computers that were much smaller than their ancestors. This technology also allowed for lowered production costs and increased powers for the computer. These were third generation computers and their other main features were having monitors and keyboards for data output and input, having magnetic disks for secondary storage and having software and hardware through sophisticated operating systems.

The invention of the integrated circuit meant that various modifications could be made to the basic design to improve it and thereby improve the succeeding computer generations. The number of transistors placed on a single chip was steadily increased leading to a shrink in the cost and size of computers but a further increase in the computer's power.

It is clear that the period between 1960 and 1970 saw great advancements

in the world of computers and if it were not for these major milestones, we would not be in possession of the powerful machines that help us perform various functions on a day-to-day basis.

WORK CITED

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