

Term paper on computer motherboard: parts and functionality

[Sociology](#), [Communication](#)



Introduction

The motherboard is the connection point where all the other components of the computer are attached. The motherboard is the heart of computers, and it is responsible for handling system resources and the core components of the computer such as BIOS, CPU and the system memory. It carries system buses, circuits and the RAM chips. This paper will be a description essay. I will describe a motherboard, technical description of a motherboard and its specifications.

The motherboard is alternatively called the Mb, mobo, mainboard. Mobd, board, boardbase, system board, main circuit board, printed wired board or the logic board. It is a printed circuit board, and it is the foundation of a computer that allows that RAM and the CPU and other hardware components of a computer to communicate and function together synchronously. In the computer, the main printed circuit board is called the Motherboard (Computer Hope, 2014).

Before the invention of a microprocessor, personal computers were made up of several printed circuit boards in red cage with the components linked by backplane and other interconnected sockets. During 1980 and 1990s, it was considered economical to increase the number of peripheral roles into motherboard; this resulted in the manufacturers of personal computers to include motherboards and single IC that are capable of holding low speed peripherals. The first types of motherboard only held few components of a computer system; those kinds of motherboard only had the processor and card slots, and they were operated by users, by plugging such components as memory and floppy drive controllers into the slots.

Description of a motherboard

It is very difficult to measure the speed of the computer; this is because it varies based on the attached CPU. Motherboard is a very critical component of the CPU, hence the name Main Circuit Board. Motherboard links all the other sections of the CPU (Computer Hope, 2014).

The Types of the motherboard that is installed in a personal computer, greatly affects the speed and the expansion capabilities of the system. Computer motherboard provides connection the assist all the various components of a computer to function synchronously and harmoniously (Computer Hope, 2014).

Tech description of the motherboard

The motherboard is a one plastic sheet that is made of full electrical conductors. These conductors run down and across and are placed in various layers to connect the individual components and to transfer data between them. The motherboard is connected to a PC box using screws and small plastic brackets. The motherboard and a cabinet are manufactured in a manner that suits each other hence there are holes in the metal for connectors that are mounted on the motherboard. The motherboard should be connected to the power supply of the personal computer that is installed in cabinet. This connection is done using a standard connector. In a PC, all traffic originates from and ends at the motherboard. This is the reason it is the most critical component of the personal computer. The motherboards contain non-volatile memory that is instrumental in initializing the computer system and in loading start up software or the operating system from

external peripheral devices.

(Build Computers, 2014).

The motherboard is equipped with interface sockets, input slots and expansion slots with memory modules, processors, plug in cards, daughter boards and the expansion slots like sound and network cards or the other peripheral devices such as the modem that is connected to it. It is in the motherboard that all other components of computers meet and which connects the subassemblies to one another and to the sources of power (Anita, 2010).

Modern motherboards boast of very many varieties with several build in features. They have a direct effect on the capabilities of computer system and provide a potential opportunity for upgrades.

The motherboard holds various crucial components of the system such as the processor, expansion slots, PCI slots, AGP slots and IDE connectors and ports, memory that connect directly or indirectly to every section of the computer.

The motherboard is a very large printed circuit board with several chips and connectors as well as electronics that are mounted on it. Inside the personal computer, data is exchanged between or through various devices. This data exchange occurs in the motherboard where the components are linked to each other. In tablets and laptops and modern types of desktops, motherboard incorporates the video card and sound card functions. This will enable these computers to be portable and small in their size (Build Computers, 2014).

Components of the motherboard

Motherboard is considered as the very foundation of every computer, and it is the major functioning unit. All components that makeups a computer system are attached to the motherboard. This component includes the storage devices and the CPU as well as the printer ports and the RAM. Attached to a computer, are various components of the motherboard that are very critical to the function of every computer (Build Computers, 2014).

Buses

This is a communication system which transfers data between the various components of a computer. This will include information from both hardware and software. It is a physical arrangement providing logical connectivity and functionality as the electrical bus. Buses use both bit serial and parallel connections. There is the internal and external bus in a motherboard.

ROM BIOS

Motherboards have a special chip that contains ROM BIOS software. The ROM contains start up programs and drivers that are used to make the system running and which act as interface to basic hardware of the system. BIOS test the major components of a computer system and tests the system hardware components. The motherboard ROM is a collection of very many programs contained in one or two chips. These programs are loaded when the computer is put on, it has the boot system.

Chipsets

The chipset ties together the various parts of the computer system and moves data among these various parts. It is the chip which determines the memory, CPU and the devices to be used by the computer.

The chips are the section where the active devices of the motherboard are gathered. The chips are electronic circuits that are crammed together with the transistors. There are several functions of the chips; these are: ROM chips that store BIOS and couple of other programs; CMOS storage that contain data that is user defined and used by set up programs; and the chipset that is made up of two controllers incorporating very many essential functions. It has the Northridge and Southbridge components. Northridge deals with performance that is high performance and Southbridge deals with less sensitive devices.

The sockets

There are also sockets at the motherboard; they are holders that are often soldered on the motherboard. The sockets are designed to match a chip or the card. It is through the sockets that various sections are connected to the motherboard. There are also sockets that mount the CPU and RAM modules and the expansion cards or adapters such as AGP, AMR and PCI slots. The main idea behind the socket is that a component can be directly installed on the motherboard without the need for special tools. These components should be pushed firmly and carefully to the socket. The following diagram illustrates the various components of the motherboard (Build Computers, 2014). The motherboard has several inputs and outputs where various

equipment that are connected to it. Most ports are only visible where they end and in the connector behind the personal computer. These are in the following areas: Ports for mouse and keyboard, sockets for microphone and speakers and serial ports, USB and parallel ports. The connectors are often soldered into the motherboard in order for external components like the speakers, mouse, printer and keyboard to be directly connected to the motherboard (Computer Hope, 2014).

Specifications of motherboard

(HP, 2014)

Conclusion

Motherboard is a PCB with a large expansion capability, and as the name indicates, it is the mother of the various computer components that are attached to a personal computer. The motherboard provides electrical connections where the entire components of the personal computers communicate together. the buses receives the data (or information) from the other components attached to it (e. g. CPU, RAM, I/O devices) and deliver it to the different destinations, which are also other devices attached to the motherboard. The buses communicate with the other devices through the slots, ports and sockets. All the traffic of data that occurs through the buses of the motherboard are regulated by the chipsets. Ultimately, the ROM BIOS makes possible it possible for the computer to boot up before all this exchange in date among all the different devices attached to the motherboard take place. As opposed to backplane, the motherboard has the Central Processing Unit (CPU) and it also hosts other devices and

subsystems. With motherboards, it is increasingly becoming very common to integrate the peripherals to the motherboard. This will aid in determining the features as well as the motherboard capabilities.

References

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