Analysis of Factors Affecting Computer Data Processing Speed

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Abstract. Computer has become an indispensable tool in people's daily production, life and work today. When it is widely used to improve the quality of life and production efficiency, the speed of computer in data processing and operation is widely concerned. In this paper, the author gives a brief introduction to the computer data processing, discusses the demarcation of the computer data processing process, and analyzes several main factors that affect the speed of data processing.

Keywords: Computer, Data Processing, Speed of Operation

1. Introduction

Nowadays, people's use of computer has been divorced from the concept of computer in the original sense, which urges people to pursue the speed and efficiency of data operation and the quality of data operation more. Computers and people's lives have produced a closer combination and people's work needs more computer technology auxiliary role. Computers can be combined with personal use to meet daily office and entertainment needs. Computer data processing is the most basic work of computer application, especially in the process of computer data processing [1]. However, due to various objective problems, some computer data processing speed cannot meet the normal needs of people, and the speed of data processing has a very important impact on the performance of the computer. Through the in-depth study of computer data processing ability, the ability of computer data processing can be improved, and in practice, the problems affecting the ability of computer data processing can be continuously improved.

2. Basic concepts of computer data processing

With the continuous development of computer technology, computers have been widely used in various places. From a certain perspective, computers are fully integrated into our lives and become indispensable items in our lives. According to the size of the volume, computers can be divided into very large, large, medium and small computers and microcomputers. In engineering applications and scientific research, the use of mainframe computers is more common. The structure of the mainframe
computer is complex, and the number of parts used is large. At the same time, because the central processor of a large calculator needs to complete a large number of operations, it must have high performance.

Microcomputers are commonly used in our daily lives. With the continuous improvement of scientific research technology, the computing power of computers is also constantly improving, and computers may become more and more portable and smaller. However, although the tiny computer is easy to carry and transport, according to the special internal structure of the computer, if you want to enhance its computing power, you usually need to increase its volume to achieve. At the same time, the computer also needs to have a certain heat dissipation capacity by installing a heat sink or other heat dissipation devices, so as to ensure that its performance will not be affected by the excessive temperature during the operation of the computer.

In addition to the above functions, the computer also has the function of data integration processing. In general, we need to analyze and study computer data from the macro concept of computer, and how to synchronize data is also a problem that cannot be ignored. Computer data processing generally includes two aspects of logical operations and data processing [2]. For example, when a computer processes pictures taken by a mobile phone, it needs to not only calculate image data, but also process logical operations. The binary numbers 0 and 1 are the most basic and essential logic of the computer. At the same time, the computer can convert the binary into other data through different conversion methods. Figure 1 is a schematic diagram of a computer's data processing device.

![Figure 1](image_url)

**Figure 1.** Schematic diagram of the data processing facilities of the computer

3. Process of computer data processing
The data processing of a computer needs to go through a complex process. After receiving the instruction of data processing, the central processor of the computer begins to analyze and process the data, decode and analyze the data, convert the data into a binary language that can be accepted by the machine, process the data in the cache of the computer, and process the data in the central processor of the computer [3]. In the process of computer data processing, it is necessary to control the internal storage of the computer. In the process of computer data processing, the computer operation is a complete process of data processing. In the process of data processing, it is necessary to clean up the internal cache of the computer. In general, the data processing process of a computer requires the following steps. Figure 2 is a schematic diagram of the basic process of data processing of the computer.
Data conversion
Calculating binary data
Caching of data
Data storage center
Data processing center

Figure 2. Schematic diagram of the basic process of computer data processing

3.1. Data conversion
In the actual data processing process of the computer, it is necessary to first convert the data that the computer needs to operate binary, so as to realize the recognition of the data, at the same time, the pre-processed information needs to be converted into binary data, the user needs to use the decoder to process the data, the user generally needs to use the decoder to view the video, the decoder is the key to the data conversion, and the next step after the data processing is the data storage operation [4].

3.2. Caching of data
Generally speaking, for computer computing, data caching is the retrieval and processing of the data obtained from the central processor in the unit where the cache is stored. For the cache space, it is necessary to ensure that the data is read smoothly, not to cache the data content that exists in the data itself.

3.3. Calculating binary data
When processing data through common computer technology, the most common is binary data. In the basic operation of computer, it is necessary to recognize binary data first. In the basic operation of computer data processing, it is necessary to use the bare machine of computer to identify binary data. In the process of computer operation and processing of data, binary is the most basic operation [5].

4. Reasons for the impact on the speed of data processing on computers
After the principle and process of data processing for computer, there is some reason to analyze the speed of computer operation. Usually in the process of computer data processing instruction execution, a number of very important processes may affect the speed of computer data processing, which is also the more important factors affecting the speed of computer data processing. Figure 3 is a schematic diagram of the factors affecting the speed of computer data processing operation.

Figure 3. Schematic diagram of influence factor size

4.1. CPU issues
CPU is the central processor, which is the core component of a computer and usually uses the main
frequency to measure its speed of operation, and the so-called main frequency is fundamentally a unit of frequency that can mark the number of times a computer can perform operations per second. Therefore, the higher the CPU main frequency in a computer, the faster it performs operations, and for a computer central processor, cache is also designed. Generally speaking, cache design is mainly to be able to arrange a cache area between CPU and memory, can significantly improve the actual efficiency of data processing.

4.2. Memory problems
Generally speaking, memory is set up in the computer, its fundamental purpose is to provide CPU with a more ideal cache process and cache space, and thus to improve the overall speed of computer data processing, in the whole process of users using the computer to calculate, if the computer itself does not have memory, it is likely to cause the computer system cannot open or run very slowly, produce very obvious Catton, have a very negative impact on user use, but also lead to computer computing speed is not smooth enough, use performance is reduced [6]. Besides, if the computer itself does not have memory, then the CPU will have to take on all the tasks of data processing, causing a very serious burden on its operation. Besides, the longtime operation of the computer will cause the CPU temperature to rise continuously, if it is not cooled in time and heat dissipation treatment, it is likely to cause CPU damage and cause certain economic losses. At present, the major computer manufacturers will set up a set of temperature sensing equipment in the computer, some more mature units will be connected with intelligent technology. These systems will automatically control the computer when the temperature exceeds the normal limit, which is a very safe protection. But the impact of insufficient or no memory on the speed of data production is pretty certain.

4.3. Hard disk problem
Compared with CPU and memory, although the hard disk does not have a very large impact on the speed of data processing on the computer, it does not mean no impact. Using different hard disks, the actual rate of reading data is naturally different. CPU and memory have a very direct impact on the speed of data processing on the computer[7]. Overall, the larger the memory does not mean that the faster the computer carries out data processing, it has to combine the actual situation of the CPU, basically, the main factors affecting the speed formation of the computer from large to small in order to arrange the CPU, memory and hard disk.

5. Conclusion
Data processing is the basic program of computer operation, and has a direct relationship with the performance of the computer. All the work carried out by the computer needs to be completed through data processing. In order to analyze the factors that affect the operation speed, it is necessary to analyze from the basic facilities, including the operation speed of the CPU, the setting of the memory space, the setting of the cache space, and so on. All of the above factors can directly or indirectly affect the operation speed of the calculation bureau when processing the data.

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