



CLASSIFICATION OF INFORMATION-INTELLECTUAL SYSTEMS

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ABSTRACT: The processing methods and principles for their implementation for each area have their specific features, which are primarily determined by a specific type of storage medium, coding methods and ways to present processing results. Thereby information processing devices for various areas often turn out to be dissimilar to each other. But beyond this outer dissimilarity hides the same methodology and principles of construction processing systems, which is decisive for us and makes up the subject studying in this course. The basis of information processing methods is computational mathematics, information theory and mathematical statistics.

Keywords: Information system, information technology, computing complexes, multi-machine computer systems, random access memory, software, IS performance, teleprocessing systems, input-output channels.

Introduction. Information-measuring systems are used as autonomously (collection, processing of data on moving objects, the external environment, biological objects), and as part of various automated complexes created as a result of the integration of computing and measuring equipment, input-output devices and communications. Whatever from purpose and specific application, the general requirement for IMS is to that the initial measuring (most often analog) information or messages entered (received) into the system could be restored (or presented) without distortion. For most modern IIS a requirement is also the requirement for the transfer and processing of information in real time.

The main part. Information System (IS) - a set of technical means and software designed for informational user services and technical facilities. The composition of the technical means include equipment for input, storage, conversion and with drawal data, including computers (CM) or computers, CM interface devices with objects, data transmission equipment (communication equipment) and communication lines. Software (software) - a set of programs that implement

functions assigned to the system (distinguish between system and applied). IS functions are to perform the required data processing: input, storage, transformation and presentation. Examples of IS are computing systems for solving scientific, engineering, households; automated and automatic control systems technological equipment and technical facilities; the system real time (transport, monitoring); information measuring systems and others The basis of IS is technical means, as their performance and reliability is most determined by the effectiveness of IS.

Single-machine uniprocessor ISs. Historically first and still widespread are single-machine ISs built based on a single CM with a traditional single-processor structure, to considerable experience in designing and operation of such IS, and therefore their creation, including development software does not cause fundamental difficulties. However, performance is not satisfactory for everyone. applications. Increase CM performance and reliability provided mainly by improving the elemental technological base. At any level of technology cannot be provided absolute reliability of the element base, and therefore not for single-machine IS exclude the possibility of loss of performance. Thus, single-machine ISs do not fully provide reliable automation of data processing. Computing complexes. Since the 60s to enhance Reliability and performance of IS several CMs were interconnected, forming a multi-machine computing complex.

Fig. 1.1. Multi-machine computing complex with indirect (a) and direct (b) connections between CM In the early multi-machine complexes, the connection between the CMs was provided through shared external storage devices - hard drives magnetic disks (HDD) or magnetic tapes (NML) (Fig. 1.1, a)

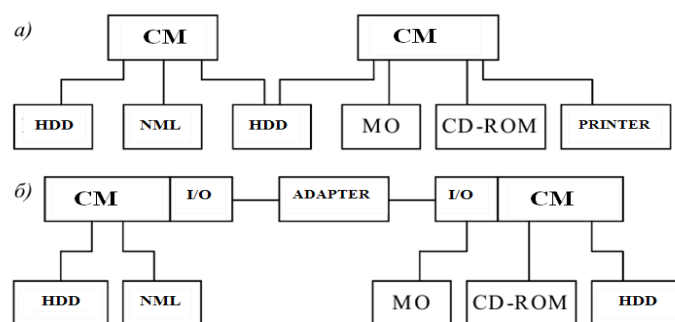


Fig. 1.1



then there is due to access to shared data sets. This connection is called indirect and is effective only when CM interact rarely enough, for example, if one of the CMs fails or moments of the beginning and end of data processing. More operational CM interaction is achieved through direct communication through the adapter, providing exchange of data between input-output channels (I / O) two CMs (Fig. 1.1, b) and the transmission of interrupt signals. Thereby good conditions are created for the coordination of data processing processes and the efficiency of data exchange is increased, which allows parallel processing processes and significantly increase IS performance. Currently multi-machine computer systems are widely used to enhance IS reliability and sharing of peripheral equipment. In multi-machine computing complexes, interaction data processing processes is provided only through exchange interrupt signals and data transmission through adapters channel - channel or shared external storage devices. The best conditions for process interactions - when all processors have access to everything the amount of data stored in random access memory (RAM), and can interact with all peripherals complex. Computing complex containing several processors, random access memory (shared or shared between processors) and shared peripherals called multiprocessor computing complex. The principle of constructing such complexes

The computing system includes hardware and software-oriented solution to certain totality of tasks. There are two ways to orient the aircraft. At first, computer system can be built on the basis of CM or general-purpose computing complex, and system orientation provided by software - application programs and, possibly an operating system. Secondly, orientation to a given class tasks can be achieved through the use of specialized VMs and thirteen computing complexes. In this case, it is possible at moderate cost. equipment achieve high performance. Specialized computing systems are most widely used in solving problems vector and matrix algebra, digital signal processing, systems real time, as well as related to image processing, pattern recognition, etc. Such systems used processors with specialized systems commands and the configuration of the complexes was strictly oriented to a specific class of tasks. Adaptation of a computing system in order to adapt it to the structure the implemented algorithm is achieved by changing the configuration system. In this connection between processors and modules memory and peripherals are installed dynamically in according to the needs of tasks processed by the



system in the current moment of time. In this regard, adaptive computing systems otherwise called systems with dynamic structure.

Conclusion. All productive activity of a person is somehow connected with processing information. The process of development of society is inseparable from becoming more complete and efficient processing methods information. Every field of science and heavily different industries activities (education, economics, ecology, extractive industries, transport, communications, medical diagnostics, management, etc.) represent a set of ideas and methods designed for purposeful and efficiently processing the information for which this region.

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