SYSTEM SOFTWARE

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System software

- System software - a set of programs that provide management of a computer system, such as processor, memory, input-output devices, networking equipment, acting as an "inter-interface", on the one hand that the equipment and on the other - user applications. In contrast to the application software, the system does not solve specific practical problems, but only provides the work of other programs, giving them the service functions, the details are abstracted hardware and firmware implementation of a computer system manages the hardware resources of a computer system.

- System programming - creation of the system software.

- System Programmer - programmer, specializing in system programming.

- The assignment of a software system to conditional and depends on the conventions used in a particular context. As a rule, system software are operating systems [⇨], tool [⇨], the programming system [⇨], database management systems [⇨], a wide class of middleware software.

Operating System

- Operating System - a complex system programs, expanding the capabilities of a computer system, as well as providing its resources, and executes application programs interact with users. In most computer systems are the main operating systems, the most important (and sometimes the only) part of the system software.

Functions of operating systems

- Basic functions (simple operating systems):

- Download applications into memory and executed.
- Standardized access to peripheral devices (IO devices).
- RAM management (distribution between processes, virtual memory).
- Controlling access to data on non-volatile media (such as hard disk, CD-ROM, and so on. D.), Organized in a particular file system.
- User interface.
- Network operations, support the protocol stack.


guadalinex
Linux
Microsoft
Windows
Mac OS X

The concept of the operating system

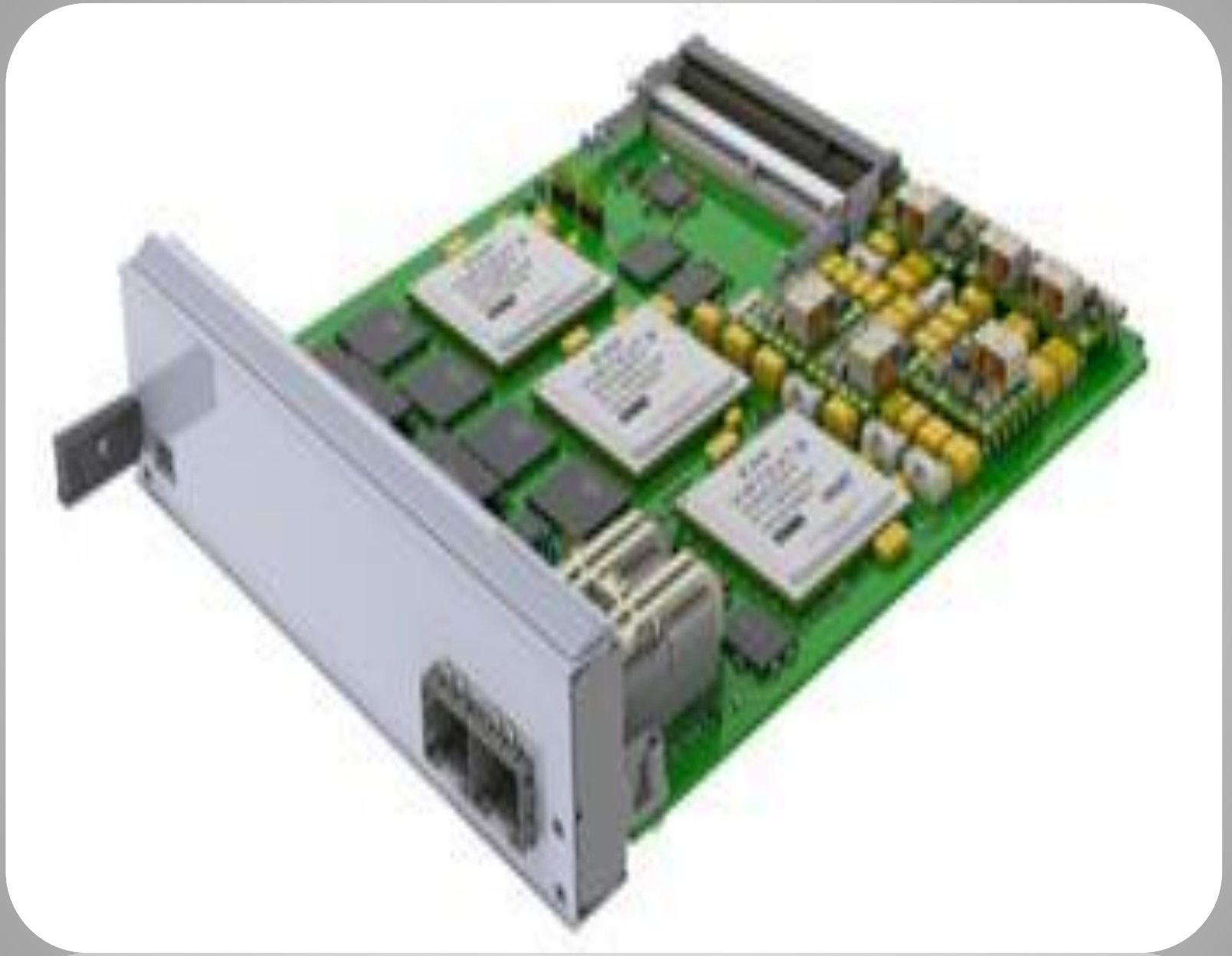
- There are two groups of definitions of operating systems, "a set of programs that control the equipment" and "set of programs that control other programs." Both of them have their precise technical meaning, which, however, becomes clear only on closer consideration of the question of why do we need the operating system.
- There computing applications, for which the operating system are redundant. For example, embedded microcomputers found today in many household appliances, cars (sometimes a dozen in each one), cell phones, and so on. N. Often, a computer continuously performs only one program to run at startup. And simple game consoles - and which are specialized microcomputers - can dispense with the operating system, starting when the program recorded on the device is inserted into the "cartridge" or CD. Nevertheless, some microcomputers and game consoles is still running its own specific operating systems. In most cases, it is UNIX-like systems (the latter is particularly true of programmable switching equipment: firewalls, routers).

The basic idea of operating systems

- The predecessor operating systems should be considered as utilities (loaders and monitors), as well as a library of frequently used routines, began to develop with the advent of mainframe 1st generation (late 1940s). Utilities minimize the physical manipulation of the operator with the equipment, and allow the library to avoid repeated programming of the same actions (of the input-output operations, calculation of mathematical functions, and so on. N.).
- In 1950-1960-ies were formed and implemented the basic ideas that define the functionality of the operating system: batch mode, time-sharing and multitasking, the separation of powers, real-time file structure of file systems.

Built-in program

- Embedded Software. Built-in software or firmware - the program is, "sewn" in digital electronic devices. In some cases (e.g., BIOS IBM-PC compatible computers) are in fact part of the operating system stored in the permanent memory. The relatively simple devices, all operating system can be built. Many devices of modern computers have their own "firmware" that manage those devices and make it easier to interact with them.



Utilities

- Utilities - a program designed for a narrow range of support tasks. Sometimes referred to as utility class service software.
- Utilities used to monitor the performance of sensors and equipment performance (eg, CPU temperature monitoring or video), control equipment parameters (limit maximum speed CD-drive, change the fan speed), the control parameters (check referential integrity, correctness of data recording), expansion features (formatting or disc re-retentive, deletion can not be restored).

Systems of programming

- This category includes system programs for software development:
- assemblers - computer programs, carry out the conversion program in the form of source code in assembly language into machine instructions in object code;
- translators - software or hardware is required to translate the program;
- compilers - software that translates text of the program in high-level language into an equivalent program in machine language.
- interpreters - Programs (sometimes hardware), analyzing the team or the operators of the program and then perform them;
- linkers (linkers) - programs that produce layout - take the input of one or more object modules and assemble them executable;
- preprocessor source - a computer program, receiving input data, and outputs the data to the input of another program, for example, such as the compiler;
- debuggers (English debugger.) - medium modules or individual development programs designed to find errors in programs;
- Word processing - computer programs designed to create and edit text files and view them on the screen, print, search for text fragments, etc .;.
- specialized editors source - text editors to create and edit the source code of programs. Specialized editor source may be a standalone application or be incorporated into an integrated development environment;
- subroutine libraries - collections of objects or routines that are used for software development;
- Editors GUI.

Thank you for attention