Стр 50-51

**Text 1. COMPUTER SYSTEM ARCHITECTURE**

As we know, all computer systems perform the functions of inputting,

storing, processing, controlling, and outputting. Now we’ll get acquainted

with the computer system units that perform these functions. But to begin

with let’s examine computer systems from the perspective of the systems designer,

or architect.

It should be noted that computers and their accessory equipment are

designed by a *computer system architect,* who usually has a strong engineering

background. As contrasted with the *analyst,* who uses a computer to solve

specific problems, the computer system architect usually designs computer

that can be used for many different applications in many different businesses.

For example, the product lines of major computer manufacturers such as

IBM, Digital Equipment Corporation, and many others are the result of the

efforts of teams of computer system architects.

Unless you are studying engineering, you don’t need to become a computer

systems architect. However, it is important that as a potential user, applications

programmer, or systems analyst you understand the functions of

the major units of a computer system and how they work together.

**Types of computers**

The two basic types of computers are analog and digital. *Analog computers*

simulate physical systems. They operate on the basis of an analogy to the

process that is being studied. For example, a voltage may be used to represent

other physical quantities such as speed, temperature, or pressure. The response

of an analog computer is based upon the measurement of signals that

vary continuously with time. Hence, analog computers are used in applications

that require continuous measurement and control.

*Digital computers,* as contrasted with analog computers, deal with discrete

rather than continuous quantities. They count rather than measure.

They use numbers instead of analogous physical quantities to simulate ongoing,

or real-time processes. Because they are discrete events, commercial

transactions are in a natural form for digital computation. This is one reason

that digital computers are so widely used in business data processing.

Machines that combine both analog and digital capabilities are called

*hybrid computers.* Many business, scientific, and industrial computer applications

rely on the combination of analog and digital devices. The use of combination

analog devices will continue to increase with the growth in applications

of microprocessors and microcomputers. An example of this growth is

the trend toward installing control systems in household appliances such as

microwave ovens and sewing machines. In the future we will have complete

indoor climate control systems and robots to do our housecleaning. Analog

sensors will provide inputs to the control centers of these systems, which will

be small digital computers.