Microprogramming is a process of writing microcode for a microprocessor. Microcode is low-level code that defines how a microprocessor should function when it executes machine-language instructions. Typically, one machine language instruction translates into several microcode instruction

Control unit operated the CPU and hence the computer, it interprets the instruction and helps in execution of the instruction.

It consists of

■ A **main memory**, which stores both data and instructions5

■ An **arithmetic and logic unit (ALU)** capable of operating on binary data

A **control unit**, which interprets the instructions in memory and causes them

to be executed

■ **Input–output (I/O)** equipment operated by the control unit

**Memory buffer register (MBR):** Contains a word to be stored in memory or sent

to the I/O unit, or is used to receive a word from memory or from the I/O unit.

■ **Memory address register (MAR):** Specifies the address in memory of the word

to be written from or read into the MBR.

A thin *wafer* of

silicon is divided into a matrix of small areas, each a few millimeters square. The

identical circuit pattern is fabricated in each area, and the wafer is broken up into

*chips*.

. Moore observed that the number of transistors that could

be put on a single chip was doubling every year, and correctly predicted that this

pace would continue into the near future. To the surprise of many, including Moore,

the pace continued year after year and decade after decade. The pace slowed to a

doubling every 18 months in the 1970s but has sustained that rate ever since.

The term *embedded system* refers to the use of electronics and software within a

product, as opposed to a general-purpose computer, such as a laptop or desktop sys

tem.

**Cloud computing:** A model for enabling ubiquitous, convenient, on-demand network

access to a shared pool of configurable computing resources (e.g., networks, servers,

storage, applications, and services) that can be rapidly provisioned and released with

minimal management effort or service provider interaction

s. The **Internet of things (IoT)** is a term that refers to the expanding

interconnection of smart devices, ranging from appliances to tiny sensors. A domi

nant theme is the embedding of short-range mobile transceivers into a wide array of

gadgets and everyday items, enabling new forms of communication between people

and things, and between things themselves.