Introduction to Information Technology

CSC109

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Review

- RAM Modules?
  - **SIMM modules** have memory chip on one side of the PCB. can store 8 bits to 32 bits of data simultaneously.
  - **DIMM modules** have memory chips on both sides of the PCB. 64–bit memories. Smaller modules known as Small Outline DIMM (SO DIMM) are designed for portable computers, 32–bit memory
- BIOS is stored in?

Review

When the computer is turned on, BIOS perform which all process in sequence till OS is loaded?

1. ***POST*** is a program that runs automatically when the system is booted. BIOS performs the power-on self-test. It checks that the major hardware components are working properly.
2. **BIOS setup program**, which is a built-in utility in BIOS, lets the user set the many functions that control how the computer works. BIOS displays the system settings and finds the bootable devices. It loads the interrupt handlers and device drivers. It also **initializes the registers.**
3. ***Bootstrap Loader*** is a program whose purpose is to start the computer software for operation when the power is turned on. It loads the operating system into RAM and launches it. It generally seeks the operating system on the hard disk. The bootstrap loader resides in the ROM. The BIOS initiates the bootstrap sequence.

R.7 Power On Self Test (POST)

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R.6

3 Types of ROM

Types of ROM vary in the number of re-writes &

method used for the re-writing.

- PROM (Programmable ROM)
- EPROM（Erasable Programmable ROM）
- EEPROM（Electrically Erasable Programmable ROM）

All Above ROM retain their content when PC power is turned off.

R.6 ROM have evolved from the fixed read only memory to the ones that can be programmed and re-programmed

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PROM (Programmable ROM)

- Programmed with special tools
- Contents cannot be changed
- Thousands of Diodes or fuses
- Operates under 12V DC

R.5 PROM can be programmed with a special tool,
but after it has been programmed the contents cannot be changed.
PROM memories have thousands of fuses (or diodes).
High voltage (12 V) is applied to the fuses to be burnt.
The burnt fuses correspond to 0 and the others to 1.

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R.4

EPROM（Erasable Programmable ROM）

- Programmed by special Tools
- Can be erased by exposing it to UV light and reprogrammed
- Have to be removed from computer for rewriting

R.4 EPROM can be programmed in a similar way as PROM,
but it can be erased by exposing it to ultra violet light and re-programmed.
EPROM chips have to be removed from the computer for re-writing.

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EEPROM（Electrically Erasable Programmable ROM）

- Can be erased by electrical charges and reprogrammed
- Do not have to be removed from computer for rewriting

R.3

Flash Memory

- Special type of EEPROM
- Combines features of RAM and ROM
- Data is not lost
- High speed memory, durable and low energy consumption
- Used in mobile phones, camera, laptop etc

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R.3 IT is a kind of semiconductor-based non-volatile, rewritable computer memory that can be electrically erased and reprogrammed
It combines the features of RAM and ROM.
It is a random access memory and its content can be stored in it at any time.
However, like ROM, the data is not lost when the machine is turned off or the electric power is cut.
Flash memories are high-speed memories, durable, and have low-energy consumption.
Since flash memory has no moving part, it is very shock-resistant.
Due to these features, flash memory is used in devices such as digital camera, mobile phone, printer, laptop computer, and records.
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