Non-volatile memory chips essay sample

Technology, Computer

Non-volatile memory chips – is computer memory that once you turn off the computer the information is still there.. Examples of non-volatile memory include read-only memory, flash memory, ETC . Non-volatile memory is typically used for the task of secondary storage, or long-term persistent storage * Rom – MASK ROM PROM , EPROM , EEPROM

PROM : Programmable- Read Only Memory is a type of ROM that is programmed after the memory is constructed. The PROM was invented in 1956 by Wen Tsing Chow, working for the Arma Division of the American Bosch Arma Corporation in Garden City, New York. This is an unerasable, non-volatile data storage memory chip. It can be programed one time after it is purchased. It allows the user to choose the data or program to put onto the memory. The memory chip is delivered blank, and the programmer transfers the data onto it. To write data onto a PROM chip, you need a special device called a PROM programmer or PROM burner. The process of programming a PROM is sometimes called burning the PROM. Once the data is transferred, it cannot be changed or erased. The difference between a PROM and a ROM (read-only memory) is that a PROM is manufactured as blank memory, whereas a ROM is programmed during the manufacturing process ` These types of memories are frequently seen in video game consoles, mobile phones, radio-frequency identification (RFID) tags, implantable medical devices, high-definition multimedia interfaces (HDMI) and in many other consumer and automotive electronics products.

While PROM cannot be erased, two other versions of PROM have been developed that can be erased and reprogrammed. One type is called EPROM, or Erasable Programmable Read-Only Memory. This type of memory uses

floating-gate transistors and can be erased by strong ultraviolet light. The other type is EEPROM, or Electrically Erasable Programmable Read-Only Memory. EEPROM can be erased with an electrical charge and is used in flash memory. EPROM – Erasable Programmable Read Only Memory also known as the Flash Memory. This is an erasable, non-volatile data storage memory chip. The EPROM was invented by Dov Frohman of Intel in 1971 on this type of memory you can erase the whole data and rewrite with a new one. meaning, you have to erase the everything and put new data, but you cannot keep any of the old data once you overide it with the new one – BIOS and CMOS use EPROM. It is usually erased by removing the memory chip from its circuit and exposing the window to intense ultra violet light. It can be programmed many times. The ultraviolet light clears its contents, making it possible to reprogram the memory. To write to and erase an EPROM, you need a special device called a PROM programmer or PROM burner.

The main difference between EPROM chips and Programmable Read-Only Memory (PROM) chips is that the EPROM chips can be programmed more than one time, while PROM chips are not re-programmable. An example of this chip’s usage is in the way the operating system boots when a computer powers on. The electrical current sends a signal to the chip, which then starts the Basic Input/Output System (BIOS) firmware that controls the computer’s internal hardware components. The chip stores the progressive changes in the state of the computer in memory until the operating system finishes its startup process. BIOS and CMOS use EPROM EEPROM – Electrically Erasable Programmable Read Only Memory. – In 1978, George Perlegos at Intel developed the Intel 2816, which was built on earlier EPROM

technology, but used a thin gate oxide layer so that the chip could erase its own bits without requiring a UV source. on this type of ROM you can edit/modify the data and still keep your data.

EEPROM is user-modifiable read-only memory (ROM) that can be erased and reprogrammed (written to) repeatedly through the application of higher than normal electrical voltage generated externally or internally in the case of modern EEPROMs. EPROM usually must be removed from the device for erasing and programming, whereas EEPROMs can be programmed and erased in-circuit. EEPROMs do not need to be removed from the computer to be modified. However, an EEPROM chip has to be erased and reprogrammed in its entirety, not selectively. It also has a limited life – that is, the number of times it can be reprogrammed is limited to tens or hundreds of thousands of times. In an EEPROM that is frequently reprogrammed while the computer is in use, the life of the EEPROM can be an important design consideration. EEPROM does not require a power source to maintain its data. For this reason, it is commonly used by many BIOS chips to save system settings.

BIOS stands for Basic Input/Output System. When a computer is turned on, the BIOS chip executes a program called CMOS (Complementary Metal Oxide Semiconductor) that holds settings that enables the computer to recognize its hardware. Users can enter the CMOS program during boot-up to modify BIOS settings. Someone might need to do this, for instance, when he or she gets a new hard drive. After modifying the settings, the BIOS will save the new copy of instructions to EEPROM. With the advent of EEPROM, manufacturers could also update the BIOS program itself. In the past this

wasn’t possible, and an outdated BIOS chip meant having to replace the chip by getting a newer motherboard. A BIOS chip that is upgradeable using this capability is called a flash BIOS, because the EEPROM is updated using electrical charges or flashes.

PROM : Programmable- Read Only Memory EPROM – Erasable Programmable Read Only Memory An EPROM. The small quartz window admits UV light for erasure. EEPROM – Electrically Erasable Programmable Read Only Memory