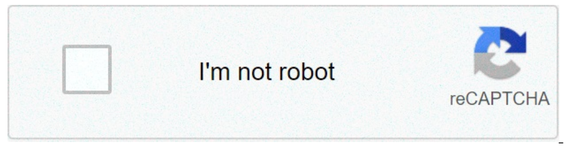

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Difference between ram and rom pdf

Share on FacebookShare on TwitterShare on LinkedinShare on PinterestWhat are differences between RAM and ROM? RAM or a Random-Access Memory is that specific component in your computer that stores information to run the apps.However, this information is not permanent in nature. This means that the information stored will be lost when you switch off your desktop or laptop computer.It is for this reason RAM is called a volatile memory of the computer systems. It also has a few other names such as:Main memoryTemporary memory andCache memory.To check the information stored in the RAM you will need to take help of the BIOS or the Basic Input-Output System. This information is necessary to run the computer and work until the computer is switched off.The significant advantage of RAM is that it does not contain any moving parts inside it. It is basically a read and write memory of the computer and operates silently, much unlike the other hardware components in your computer system.The CPU can access any location of RAM directly and quickly. It can read the sets of instructions and write the results of such reading to the RAM, which can be modified when needed.It is much easy and faster to read the instructions from the RAM and write the data in it. This data remains accessible and operational till the time the computer is running. You can store several gigabytes of data in RAM. For example:If you are using a 32-bit system, you can store up to 4 GB of data andIf you are using a 64-bit computer, you can store as much as 16 exabytes of data in the RAM.Typically, the storage capacity of a RAM can range anywhere between 64 MB and 4 GB. This temporary memory of the computer system is the fastest as well as the costliest one.There are different types of RAM such as:DRAM or Dynamic RAMSRAM or Static RAMSDRAM or Synchronous Dynamic RAM that can run at high clock speeds andDDR or Double Data Rate which is typically a synchronous RAM.However, the Static and Dynamic RAM are the most important ones among the four types. Both differ in their features and requirements as well. This is because:The Static RAM needs a constant and steady flow of power to perform and retain the information stored inside it. It is also costlier and faster in comparison to the DRAM and is typically used as the cache memory of your computer.The Dynamic RAM, on the other hand, is cheaper than the Static RAM and also functions at a much slower rate. You will also need to refresh it from time to time so that it retains the data stored in it.Read Also: 5 Best RAM Brands for PC 2020 - Verdicts & Buyer's GuideROM, or Read-Only Memory, on the other hand, is a non-volatile memory. The information stored in it can be retrieved and used any time. That is why it is called the permanent memory of the computer systems.However, the CPU cannot access this memory directly. The information stored in it is first sent to the RAM from where the CPU can have access to it.The ROM in your computer will allow writing instructions in it, but only once. However, it can be read as many times you want but you will not be able to modify or overwrite it every time.When it comes to the capacity of each, a ROM will have a much lower capacity than a RAM. This means that it is slower in performance as well.A ROM is also cheaper than a RAM and comes in different variants. Each of these variants of ROM differ in features and functionality, just like the RAM. For example:PROM or Programmable ROM can be modified by the user, but only onceEPROM or Erasable and Programmable ROM allows erasing the content stored in it by using UV rays and reprogram itEEPROM or Electrically Erasable and Programmable ROM allows erasing the content electrically and then reprogram it, even for ten thousand times andMROM or Mask ROM does not allow removing the content once it is manufactured.The information remains stored in the ROM even when you switch off your computer. The type of information to store in the ROM is decided by the manufacturer of the computer.Read Also: What is DDR3 RAM - Uses, Lifespan, Pros & ConsThis information is written by the manufacturer during the manufacturing process. Usually, the users cannot erase, modify or overwrite this information in a standard ROM.This permanently stored information is necessary to start the computer, a process commonly known as ‘booting,’ or ‘Bootstrapping’ in computer terminology. Check out the different types of memory in computer.ContentsDifferences between RAM and ROMWhich is Better?Differences between RAM and ROM1. CharacteristicsA RAM is a chip that is widely used in computers for normal operations such as starting it up indirectly by receiving the data of the ROM for the CPU to access it and loading different apps and the operating system.Whereas, the primary function of the ROM is to help in starting up a computer. It can store a little more than 4 MB of data.2. TypesAs mentioned earlier, the types of RAM and ROM also differ. The most important RAMs are the Static and Dynamic RAM. Both these have differences in features and functionality.On the other hand, ROM comes in different variants such as EPROM, EEPROM, PROM and Mask ROM, all of which have its significant features and attributes.3. UsageA RAM will allow the CPU to access, read and write data much faster so that the applications can run quickly.The ROM, however, will store all of these applications and use them for the purpose of initial booting of the computer by only allowing the CPU to read it.4. Read and write featureA RAM will allow the processors to perform both read and write operations on the temporary information stored in it.However, the ROM will only allow the user to read the information but not alter or overwrite it because these are permanent and non-erasable.5. SpeedThe speed at which the CPU can access the data stored in the RAM is much faster. This helps in using the applications quickly.In comparison, the speed of accessing the ROM is much slower. This cannot boost up the speed of the processor.6. Cost and sizeThe cost of RAM is much higher in comparison to the cost of a ROM. This price variance is due to the difference in features and physical size of a RAM and a ROM.Read Also: What is DDR4 RAM - Work Process, Uses, Benefits & DrawbacksA RAM will have a much bigger size than a ROM chip with a similar storage capacity.7. StructureThe difference in structure of a RAM and a ROM is also notable. A RAM chip will usually be in a rectangular form. It is easily inserted onto the dedicated slot on the motherboard of a computer.The Read-only memory is ideally a specific type of storage medium inside the computer that stores data permanently.8. Advantages and featuresA RAM does not have any moving parts in it and therefore ensures a silent operation. It is for the same reason it will also use much less power than the disk drives and will increase the life of the battery in your system with low carbon emissions.The ROM, on the other hand, will prevent deliberate or accidental changes of data. It will also not need periodic refreshing.9. CapacityTypically, the ROM chips will have lower storing ability than the RAMs. It ranges between 4 MB and 8 MB, usually.Whereas, the RAM chip can store data to an extent that may range between 1 GB and 256 GB in a single chip.Which is Better?As such, you cannot do without either of it. Both RAM and ROM are required for successful operating of your computer system.While the ROM will help in starting or booting up your computer, the RAM will help in running the different applications quickly and properly, provided there is a steady flow or power.The importance of each cannot be overlooked to run your computer.The Final WordsROM and RAM are essential parts of a computer which cannot function efficiently with only one of the two installed in it. The best examples of a ROM are the BIOS in a computer and cartridges in a gaming system.On the other hand, the browser you used to visit and read this page is loaded into and run by the RAM. Get the difference? Have you ever wondered how a computer stores such extensive data? A computer has two different types of memory called RAM (Random Access Memory) and ROM (Read Only Memory). Both of them sound kind of similar but actually have huge differences. Since both of them are used for storing data, many people often get confused between the two. Keep up with this blog to find out the difference between RAM and ROM and understand it in depth. What is RAM? RAM also called as random access memory. It allows users to read and write the operation of the data. It is used to store the data and programs which are used by the CPU in real-time. The data stored in the RAM can be read, written and deleted multiple times. RAM is referred to as a temporary memory as the data present in it lasts only till the power supply is on. It is just a piece of computer hardware which stores the computer’s short term memory while the computer is running. Types of RAM SRAM- Statistic random access memory stores a bit of data using the state of a six transistor memory cell. It consists of four to six transistors. Due to the number of transistors required in order to implement an SRAM cell, the power consumption is high at the time of reading or writing data and the density is reduced and price is increased as compared to DRAM. DRAM- Dynamic random access memory is considered as the computer’s main memory. DRAM memory cells are made up of a transistor and a capacitor within an integrated circuit and a data bit is stirred in the capacitor. The capacitor can either be charged or discharged. DRAM has to be recharged every few milliseconds in order to retain data because transistors always leak a small amount causing capacitors to discharge which drains the information stored in it. Also Read: Difference between Compiler and Interpreter What is ROM? ROM also called read only memory is a type of non-volatile memory in computers which is prerecorded. As the name suggests, it only performs a read operation function which means the data in this memory is stored at the time of manufacturing and the data stored cannot be altered by the users. ROM is a non-volatile memory which means the data stored in it remains untouched even after the power turns off because the data stored in this memory is on a permanent basis. It doesn’t mean that the data stored in ROM cannot be modified, it can be rewritten with the use of some very specific methods. Types of ROM PROM- Programmable read only memory is a type of ROM where the data is written after the memory chip has been created. The data in this is permanent and cannot be changed. They are used in electronic devices in order to store permanent data. Its main characteristic is that the data is programmed in it after the manufacturing process. EPROM- Erasable programmable read only memory is a type of ROM which can be erased and reused. The data on this non-volatile memory chip can be erased by exposing it to high intensity UV light. EEPROM- Electrically erasable programmable read only memory is a type of ROM which retains all the stored data even after the power is removed. The data in this memory chip can be electrically erased and rewritten using field electron emission which means there is no need for EEPROM to be taken out of the device while rewriting the data. MROM- Masked read only memory is that type of ROM in which the data is written during the manufacturing process of the memory chip. Also Read: MCA: Master of Computer Applications Key Differences Between RAM and ROM We hope this blog helped you get familiarized with all the differences between RAM and ROM. Computers and Information Technology is the most booming industry worldwide. Hoping to pursue a career in this field. Get in touch with Leverage Edu experts to get complete guidance regarding choosing the best course for yourself and getting admission to your dream university. Sign up for a free session with us now!

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