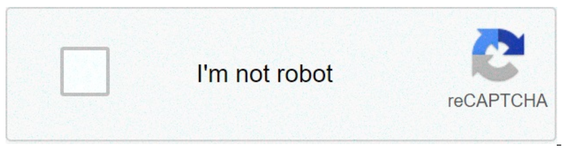

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What is difference between ram and rom pdf

Today’s generation uses a computer for everything. The most important and common activity done in computers is storing the data and files. But for storing files and other data in devices (phones or computers), memory is required. For example, RAM and ROM are types of memories sued for storing data inside electronic devices.RAM and ROM both are used for a similar function, i.e. storing data. Except these also they are similar in many ways, but that does not mean they are the same. They have several differences among them. And to choose the best you should know them deeply.RAM vs ROMThe difference between RAM and ROM is that, when compared, RAM has more advantages over ROM that includes speed, capacity, volatility, safety, etc., whereas ROM is not as much as beneficial as RAM. Due to all its benefits, RAM is more expensive, while ROM is less expensive and ideal for someone who does not want to spend too much.RAM or Random Access Memory is where the data of the computer is stored. It only stores the information and data that the computer is actively using. Therefore, it is beneficial for such use as for more programs, more memory is required, which increases the use of RAM. It has certain benefits over ROM, except it is more expensive.ROM or Read-Only Memory is used in electronic devices where data cannot be modified after the manufacture of the device. It is slower and has a lower capacity than the RAM. It is used in modern computers mostly. Despite all the disadvantages, it is considered to be less expensive, and everyone can afford it.Comparison Table Between RAM and ROMParameters of ComparisonRAMROMSpeedHigher speedSlower speedCapacityHigh capacityLower capacityModifies and erasedCan be modified and erasedCannot be modified and erasedVolatileMuch volatileLess volatileAffordableLess affordableMore affordableWhat is RAM?The RAM is a type of computer’s memory. It can be read or changed as per convenience. It is mostly used for storing the data and machine code. Several types of RAM include the following:SRAM (Static Random Access Memory): it uses multiple transistors that are more than 3. It has certain advantages such as it is simpler, good performance, reliable, uses low idle power consumption and also certain disadvantages such as its density, its price, it requires high power consumption for operation.DRAM (Dynamic Random Access Memory): memory is paired with only a single transistor (unlike SRAM) and capacitor. It is more complicated in nature but still has an advantage due to its simple cell structure. It is more affordable when compared with SRAM.VRAM (Video Random Access Memory): it also called Multiport Dynamic Random Access Memory. Mainly used for 3-D accelerators. It has two independent ports. When compared to SRAM is more expensive; therefore, SRAM is used more.Advantages of RAM:It maximizes the speed of the computer’s system.Allow storage of data inside the system.It is faster than hard drive storage.More power efficient.Much affordable than SSD and also faster.Disadvantages of RAM:It is sometimes slow when compared to ROM.It is less affordable.What is ROM?It falls under the category of non-volatile memory. Data inside this type of memory cannot be changed or erased. It allows only to read the data. It a hard-wired and include a system that cannot be changed electronically.There are various types of ROM such as:Masked Read-Only Memory or MROM: this type cannot be modified as it is original.Programmable Read-Only Memory or PROM: it cannot be programmed after the chip has been created. Information is permanent. Hence no modification or changes can be made.Erasable Programmable Read-Only Memory or EPROM: Dov Frohman was developed in 1971. No new data can be saved in it as it cannot be modified. It is not used commonly in computer systems.Electrically Erasable Programmable Read-Only Memory or EEPROM: data in it can be reprogrammed and erased. Data that can be stored in the system is not on. It is more powerful than other types.Advantages of ROM:It is non-volatile.They don’t need static time.Comparatively simpler circuitry.Permanent storage of data is also an option.Disadvantages of ROM:It cannot be modified.No changes can be made in any case.Main Differences Between RAM and ROMWhile RAM is very less affordable by everyone, ROM is considered to be the most and ideal affordable option in comparison.When it comes to speed, Random Access Memory has the upper hand and is faster than the Read-only Memory, which is relatively slow.Like speed, Random Access Memory has more capacity than Read-only Memory that has lower capacity in comparison.As the name suggests, Read-only Memory data it can only be read, not modified, or erased, while in Random Access Memory, the data can also be erased and modified.Central Processing Unit uses data stored in RAM is used for the current instructions process, while for bootstrapping, the computer data stored in ROM is used.Data stored inside Random Access Memory can be easily accessed for the process of the Central Processing Unit, whereas for the same data stored in Read-only Memory, there are steps that have to be done.Random-access Memory is much more volatile as it is safer and more reliable for data storage until there is an interruption of power in between, while when compared, Read-only Memory is less volatile as it is permanent.Conclusion Having a good memory installed in the computers is very important for its smooth functioning. While for emails and surfing on the web, they are not required. But for someone who used computers for more complex work such as editing or recording videos or images. For these purposes, memory plays a vital role. It also works as backup storage. It makes sure you don’t lose any data or files.It is the choice of the customer which (either RAM or ROM) he wants, after checking its features and advantages. Other examples of storage devices can be hard disk drives, magnetic tapes, floppy disks, etc.References Both RAM and ROM are the two major classifications of memory. The crucial difference between RAM and ROM is that RAM is a volatile memory thus stores data only till the time the power is switched on. While ROM is a non-volatile memory that retains data even when the power gets off. Another major difference between the two is that RAM allows both read and write data operation. As against ROM allows read operation only. Content: RAM Vs ROM Comparison Chart Definition Key Differences Conclusion Comparison Chart Basis for ComparisonRAMROM Stands forRandom Access MemoryRead Only Memory Memory typeVolatileNon-volatile Memory capacity1 to 256 GB per chip4 to 8 MB per chip Operation typeRead and Write both.Only Read. SpeedFastComparitively slow. Storage typeTemporaryPermanent Also referred asPrimary memorySecondary memory Presence of data according to power sourceThe stored data in RAM lost in case of power failure.Data retained in ROM even if the power is turned off. Accessibility to processorProcessor can directly access the data in RAM.Processor cannot directly access the data in ROM. CostHighComparitively low TypesSRAM and DRAMPROM, EPROM and EEPROM Definition of RAM RAM is an abbreviation used for Random Access Memory. It allows read and write operation of data by the user. It is referred to as temporary memory because the data present in this memory last only till the time the power supply is on. As once the supply gets off then the data present in it gets automatically cleared and cannot be restored. It stores program or data of any recent on-going operation inside the system. And thus this memory allows the processor to read and write the data. SRAM and DRAM are its two major classifications. SRAM stands for static random access memory. While DRAM is dynamic random access memory. Definition of ROM ROM is an acronym used for Read-Only Memory. Here the name itself is indicating that only read operation can be performed on this memory. This means the data in ROM is stored at the time of designing the system and hence user does not hold the authority to change the data present in it. The data in this particular memory is stored on a permanent basis thus power failure neither modify nor delete the data or program stored in this particular memory location. Basically bootstrap programs are stored by ROM that comes into action once the system gets turned on. And thus processor does not hold the ability to directly access this memory. However, the data in ROM can be rewritten. But this is done only by the use of some specific methods. And according to these methods, ROM is majorly classified as PROM, EPROM and EEPROM. Programmable read-only memory is abbreviated as PROM, erasable programmable read-only memory is abbreviated as EPROM and electrically erasable programmable read-only memory is abbreviated as EEPROM. RAM is a temporary storage type of memory as data lasts only till the time the power supply is on. On the contrary, ROM is a permanent memory that retains the data for a longer duration. Random-access memory is volatile in nature. But read-only memory is non-volatile in nature. The operating speed of RAM is faster than the ROM. RAM is classified as the primary memory of the system. However, ROM is categorised as the secondary memory. RAM offers memory capacity in GB usually 1 to 256 GB per chip. On the contrary, ROM permits the storage capacity in MB, usually in the range 4 to 8 MB per chip. RAM stores data on transistors thus requires a continuous source of power. While data stored in ROM remain unaffected with power failure. The data stored in RAM is changeable by the user. Whereas the data in ROM cannot be altered by the user. RAM offers the user to read as well as write data but data in ROM is pre-written and thus can only be read by the user. The processor can directly access the data present in RAM. However, the data present in ROM do not permit direct access to the processor. The cost of Random access memory is comparatively higher than the read-only memory. Conclusion So we can say that due to different functionality both RAM and ROM are used by a system for proper and efficient performance. In today’s digital world, everyone must have heard RAM and ROM very often. But ‘what is the difference between RAM and ROM?’.Whenever you go shopping to buy a mobile and computer online or offline, then you are must concerned about RAM and ROM. Everyone needs a sufficient RAM and ROM memory in their smartphones, laptop, and Digital computers to work efficiently and without hang.Nothing but, it is true that having more RAM and ROM in the devices increases the speed. So, let’s see “what is the difference between RAM and ROM?“.RAM and ROM1. RAMThe full form of RAM is “Random Access Memory”. The RAM falls under the category of Primary memory of the computer.RAM stands for ‘Random Access Memory‘. RAM stores operating system software, software applications, instructions, and other information in (CPU) the central processing unit for direct and quick access when needed to perform tasks.RAM is one of the fastest types of memory, and it has the ability to be read and write the data, but as long as there is Power Supply to the device. When the computer is off, all the processed data of RAM automatically goes to the trash.The RAM is mainly used for running software, playing games, and media like audio and videos.2. ROMThe full form of ROM stands for‘Read-Only Memory‘. This is Permanent memory in which information is entered into it once and stored permanently. Stored programs cannot be modified or deleted in this memory, they can only be read.Even after the computer is switched off, the data stored in ROM is not destroyed. Hence ROM is called non-volatile or permanent memory. Therefore this memory is called read-only memory.ROM memory is used in all types of electronic devices such as Calculator, Video Game, Digital Camera, Smartphone, etc. Most personal computers need to have ROM memory.Characteristics of RAM and ROMRAM:RAM is Volatile Memory.RAM is a temporary memory.Its storage capacity is less as compared to ROM Memory.RAM is much faster than Secondary Memory, in the term of speed.RAM continuous its process until the power switched off.All the programs, applications, software, and instructions run in this memory only.CPU uses this memory for processing.RAM is also said as a working memory of the laptop, computer, and smartphones.ROM:RAM is Non-Volatile MemoryROM is a permanent memory.Its storage capacity is more than ROM Memory.ROM is slower than RAM, in the term of speed.It stores all the basic files like apps, audios, videos, etc of the computer.ROMs are readable only, meaning that it used to read the data.ROM uses less energy as well as very reliable.Types of RAM and ROM1. RAM Types:There are two types of RAM:A. DRAMThe full form of DRAM is ‘Dynamic Random Access Memory‘. Here, the word “Dynamic” means moving or always changingHere, the word “Dynamic” means moving or always changing. So this RAM is constantly refreshed. It is the most common type of main memory in a computer. DRAM is used as the CPU’s main memory. It is a prevalent memory source in PCs as well as workstations.Dynamic random access memory is constantly restoring all the data that is being stored in memory. Nowadays DRAM is used only in devices like Computers, Smartphones, Tablets, etc. Because it is cheaper than SRAM.B. SRAMThe SRAM stands for ‘Static Random Access Memory‘. Here, the word “Static” indicates that it does not have to be continually refreshed, as the information in this memory remains constant until it is overwritten or deleted when the computer is switched off.It is a better choice than DRAM for certain uses such as memory caches located on CPUs. Conversely, the density of DRAM makes it a better choice for the main memory than SRAM.It consists of 6 transistors and doesn’t have a capacitor, the transistors do not need the power to prevent leakage.2. ROM Types:There are four types of ROM:A. MROMThe MROM is ‘Mask Read-Only Memory‘. It is programmed within the device by the manufacturers. ROMs are cheaper and older than other types of ROMs and provide the ability to store more data in less space. MROM is no more available in today’s market.B. PROMPROM stands for ‘Programmable Read-Only Memory‘. It is a memory in which once the data is stored it cannot be deleted but can modify. PROM memory is used in cases where the data needs to be changed in most of the cases.It is also used when the data that want to be permanently stored does not exceed the ROM data. They are also called PROM Programmers and PROM Burners.C. EPROMThe full form of EPROM is ‘Erasable Programmable Read-Only Memory‘. It is similar to PROM but the memory can be erased only if it is exposed to ultraviolet lights. It is non-volatile memory, meaning that the stored data remains there indefinitely.The stored can be erased and reprogrammed with the use of high voltage levels. These disadvantages of EPROM have been overcome by flash memory and EEPROM, which is why EPROMs are falling down the use in certain designs and applications.D. EEPROMThe full form of EEPROM is ‘Electrical Programmable Read-Only Memory‘. It was developed by George Perlegos at Intel in 1978. It is a nonvolatile memory chip that is used to store small amounts of data on a computer.The full form of EEPROM is ‘Electrical Programmable Read-Only Memory‘. There is also a new technology EEPROM in which the program can be programmed, erased, and reprogrammed electrically and not with ultraviolet rays. This makes them nonvolatile memory.» Also Read: Primary Vs Secondary MemoryAdvantages of RAM and ROMRAM:RAM increases the processing speed of the computer system, the best thing is higher the RAM higher will be the speed of the device.The CPU can read data faster in RAM memory as compared to secondary memory like hard disk, CD, DVD, FLOPPY DISK, and USB.RAM uses less energy from which enhances battery life.RAM can write as well as erase operations.ROM:ROM’s nature is Non-Volatile, which keeps the files and data permanently.Its data does not change automatically as like RAM, only the data changes when we want.It is cheaper in terms of price as compared to RAM.ROMs are more reliable than RAM. Because the RAM needs a long power supply.Difference Between RAM and ROM ChartLet’s know the key difference between RAM and ROM.RAM stores operating system software, software applications, and other information for the CPU for direct and quick access when needed to perform tasks.ROM is permanent memory in which information is entered into it once and stored permanently. Stored programs cannot be modified or deleted in this memory.Both reading and modifying can be done by the user.Here, the information can be read-only by the user. The user is not able to modify the data.RAM is a volatile memory of a computer. When the computer's power is turned off, all the processed data of RAM automatically goes to the trash.Even after the computer is switched off, the data stored in ROM is not destroyed. Hence ROM is called non-volatile.The processing speed of RAM is Faster than ROM.ROM's speed is slower as compared to RAM.Its size can range from 64 MB to 32 GB or even more.Its size is much more than the RAM, it can be more than 1 TB.RAM is a very expensive memory than ROM.ROM is much cheaper than RAM.SRAM (static RAM) and DRAM (dynamic RAM).MROM (Mask ROM), PROM (programmable ROM), EPROM (Erasable Programmable ROM), EEPROM (Electrically Erasable Programmable ROM).» Related: 1st to 5th Generations of Computers ExplainedFAQsRAM stands for ‘Random Access Memory‘. The RAM falls under the category of Primary memory of the computer. Because it stores operating system software, software applications, instructions, and other information in the central processing unit for direct and quick access when needed to perform tasks.The full form of ROM stands for'Read-Only Memory'. The RAM falls under the category of Primary memory of the computer. Because it is a permanent memory of the computer in which information is entered into it once and stored permanently. Stored programs cannot be modified or deleted in this memory, they can only be read.The main difference lies in volatility. RAM is a volatile memory of a computer. This means when the computer's power is turned off, all the processed data of RAM automatically goes to trash. But in the case of ROM, Even after the computer is switched off, the data stored in ROM is not destroyed. Hence ROM is called non-volatile.The full form of RAM is 'Random Access Memory'. The RAM falls under the category of Primary memory of the computer. The RAM is mainly used to running software, playing games, and media like audio and videos.The full form of ROM stands for'Read-Only Memory'. The RAM falls under the category of Primary memory of the computer. ROM memory is used in all types of electronic devices such as Calculator, Video Game, Digital Camera, Smartphone, etc. Most personal computers need to have ROM memory.Yes, ROM is permanent memory in which information is entered into it once and stored permanently. Stored programs cannot be modified or deleted in this memory, they can only be read. Even after the computer is switched off, the data stored in ROM is not destroyed. Hence ROM is called non-volatile or permanent memory.The advantages are, RAM increases the processing speed of the computer system, the best thing is the higher the RAM higher will be the speed of the device. Also, RAM uses less energy from which it enhances the battery life of computers and smartphones.report this adFrom the above info, you got the answer to “what is the difference between ram and rom”. Share with your friends also to make them what ram and rom difference have!

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