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Random Access Memory (RAM) is a type of computer memory that stores data temporarily. When you turn off your computer, the data in RAM disappears, unlike the data on your hard drive, which stays saved. RAM helps your computer run programs and process information faster. This is similar to how the brain’s memory helps us remember things. In this article, we’ll talk more about RAM and its different types.What is a Computer Memory?Computer memory is essential for storing data and instructions. It is divided into cells, each with a unique address. Memory makes computers function like a human brain, which has different types of memory (short-term, long-term, etc.). Similarly, computers have different types of memory:Cache Memory: High-speed memory that speeds up the CPU. It’s fast but expensive.Primary Memory (Main Memory): Includes RAM (volatile) and ROM (non-volatile). It stores current data.Secondary Memory: Non-volatile memory used for permanent storage (e.g., hard drives, SSDs).Types of MemoryWhat is RAM (Random Access Memory)?It is one of the parts of the Main memory, also famously known as Read Write Memory. Random Access memory is present on the motherboard and the computer's data is temporarily stored in RAM. As the name says, RAM can help in both reading and writing. RAM is a volatile memory, which means, it is present as long as the Computer is in the ON state, as soon as the computer turns OFF, the memory is erased.Random Access MemoryTo better understand RAM, imagine the blackboard of the classroom, the students can both read and write and also erase the data written after the class is over, some new data can be entered now.Evolution of RAM TechnologyOver the years, Random Access Memory (RAM) has undergone significant improvements. From its early beginnings with the Williams tube in 1947 to the most advanced DDR4 SDRAM in 2014, RAM technology has continually evolved to meet the growing needs for speed and efficiency in computers. The table below highlights the key milestones in the development of RAM, showing its progression from basic magnetic-core memory to high-speed, energy-efficient DDR4.Timeline of RAM EvolutionYearRAM TypeDescription1947Williams TubeFirst RAM type using electrically charged dots in cathode ray tubes.1947Magnetic-Core MemoryRAM is made of small metal rings to store 1 bit of data, easily accessible.1968DRAM (Dynamic RAM)Invented by Robert Dennard, using transistors to store data, requiring power.1969Intel 1103 DRAMIntel’s first DRAM product, marking commercial use of DRAM technology.1993SDRAMSamsung launched KM48SL2000, synchronous DRAM for faster processing.1996DDR SDRAMDDR SDRAM became commercially available, offering higher speeds.1999RDRAMReleased for computers with a focus on faster data rates.2003DDR2 SDRAMDDR2 SDRAM was released, providing improved speeds and efficiency.2007DDR3 SDRAMDDR3 SDRAM became available, offering faster speeds and better power efficiency.2014DDR4 SDRAMDDR4 SDRAM is made available with even higher speeds and greater energy efficiency.How Does RAM Work?RAM is made up of small transistors and capacitors that store electrical charges representing data bits. Here’s how it works:Data Storage: RAM temporarily stores data needed by the CPU.Volatility: Data is lost when the power is turned off, so it’s important to save work to permanent storage (e.g., hard drive or SSD).Speed: RAM is much faster than secondary storage, allowing quick access to data.How Computer And Laptop RAM Works Together?When you play a game or stream a movie on your laptop, the computer needs to load data from the hard drive into RAM. RAM temporarily stores this data so the CPU can access it quickly and process it. The CPU uses this memory to carry out the tasks needed to give you a smooth experience.RAM needs to be fast because it’s quicker than other storage devices like the hard drive. The speed of your RAM determines how quickly the data flows in and out of the CPU. If your RAM is slow, the CPU will take longer to process the data, making everything feel slower.Think of RAM as your short-term memory. It stores the information you need right now, like remembering what’s on your shopping list. If you forget things, you can't continue your tasks efficiently. But if you have more short-term memory, you can juggle more tasks at once and handle harder activities.The larger your RAM capacity, the faster your CPU can complete tasks, and the smoother your experience will be. Having more RAM allows you to open bigger files and use demanding programs like video editing software more easily.Hard Drive vs RAMHard DriveRAMNon-volatile storage device for long-term data storageVolatile memory used for temporary storageNon-volatile (data retained when power is off)Volatile (data lost when power is off)Slower access times (HDD slower than SSD)High-speed accessTypically larger (several TB)Typically smaller (several GB)ROM vs RAMROMRAMNon-volatile memory used for permanent storageVolatile memory used for temporary storageGenerally slower than RAMHigh-speed accessPrimarily read-onlyRead and write operationsROM can hold more than just megabytesRAM can be stored in gigabytesData accessible is less difficult but more restrictive Data accessibility is easyCheaper than RAMHigh cost as compared to ROMUsed for the permanent storage of dataUsed for temporary storage of dataRAM vs Virtual MemoryFeatureRAMVirtual MemoryDefinitionPhysical memory is used for temporary data storage.Uses a storage drive to supplement physical RAM.SpeedFast, providing quick access to data.Slower, as it relies on the hard drive or SSD.FunctionStores data currently being processed by the CPU.Extends memory capacity when RAM is full.CapacityLimited by the amount of physical RAM installed.Can use available storage space, larger than RAM.Data LossData is lost when the system is turned off.Data is lost when the system is turned off.Features of RAMRAM is volatile, meaning that the data is erased when the device is turned off.It is referred to as the primary memory of the computer, as it directly supports the CPU during operation.RAM is relatively expensive because it allows for fast, direct access to data.As the fastest type of memory, RAM serves as internal memory within the computer, enabling quick data retrieval.The overall speed of the computer is greatly influenced by the amount of RAM. With less RAM, the computer takes longer to load and may slow down significantly.How Much RAM Do You Need?The system's RAM requirements depend on what the user is doing. For editing videos, for instance, a machine should have at least 16 GB of RAM, though more is preferable. A machine needs also to have at least 3GB of RAM to run Photoshop CC on a Mac for photo processing, according to Adobe. Even 8GB of RAM, meanwhile, can cause a slowdown if the user is using many apps at once.Types of RAMRAM is further divided into two types, SRAM - Static Random Access Memory and DRAM- Dynamic Random Access Memory. Let's learn about both of these types in more detail.1. SRAM (Static Random Access memory)SRAM is used for Cache memory, it can hold the data as long as the power availability is there. It is refreshed simultaneously to store the present information. It is made with CMOS technology. It contains 4 to 6 transistors and it also uses clocks. It does not require a periodic refresh cycle due to the presence of transistors. Although SRAM is faster, it requires more power and is more expensive. Since SRAM requires more power, more heat is lost here as well, another drawback of SRAM is that it can not store more bits per chip, for instance, for the same amount of memory stored in DRAM, SRAM would require one more chip.Function of SRAMThe function of SRAM is that it provides a direct interface with the Central Processing Unit at higher speeds.Characteristics of SRAMSRAM is used as the Cache memory inside the computer.SRAM is known to be the fastest among all memories.SRAM is costlier.SRAM has a lower density (number of memory cells per unit area).The power consumption of SRAM is less but when it is operated at higher frequencies, the power consumption of SRAM is compatible with DRAM.2. DRAM (Dynamic Random Access memory)DRAM is used for the Main memory, it has a different construction than SRAM, it uses one transistor and one capacitor (also known as a conductor), which is needed to get recharged in milliseconds due to the presence of the capacitor. Dynamic RAM was the first sold memory integrated circuit. DRAM is the second most compact technology in production (the First is Flash Memory). DRAM has one transistor and one capacitor in 1 memory bit. Although DRAM is slower, it can store more bits per chip, for instance, for the same amount of memory stored in SRAM, DRAM requires one less chip. DRAM requires less power and hence, less heat is produced. Function of DRAMThe function of DRAM is that it is used for programming code by a computer processor to function. It is used in our PCs (Personal Computers).Characteristics of DRAMDRAM is used as the Main Memory inside the computer.DRAM is known to be a fast memory but not as fast as SRAM.DRAM is cheaper as compared to SRAM.DRAM has a higher density (number of memory cells per unit area)The power consumption by DRAM is moreTypes of DRAMSDRAM: Synchronous DRAM, increases performance through its pins, which sync up with the data connection between the main memory and the microprocessor. DDR SDRAM: (Double Data Rate) It has features of SDRAM also but with double speed. ECC DRAM: (Error Correcting Code) This RAM can find corrupted data easily and sometimes can fix it.RDRAM: It stands for Rambus DRAM. It used to be popular in the late 1990s and early 2000s. It was developed by a company named Rambus Inc. At that time it competed with SDRAM. Its latency was higher at the beginning but it was more stable than SDRAM, consoles like Nintendo 64 and Sony Play Station 2 used that.DDR2, DDR3, AND DDR4: These are successor versions of DDR SDRAM with upgrades in performanceDifference Between SRAM and DRAMFeatureSRAM (Static RAM)DRAM (Dynamic RAM)Full FormStatic Random Access MemoryDynamic Random Access MemoryPower ConsumptionRequires more powerRequires less powerCostMore expensiveLess expensiveSpeedFaster due to no need for refreshingSlower because it needs to be refreshedUsageUsed in cache memory for quick accessUsed in main memory for large data storageFor more information, you can refer to our dedicated article on Difference between SRAM and DRAM.Advantages of RAMSpeed: RAM is faster than other types of storage like ROM, hard drives or SSDs, allowing for quick access to data and smooth performance of applications.Multitasking: More RAM allows a computer to handle multiple applications simultaneously without slowing down.Flexibility: RAM can be easily upgraded, enhancing a computer’s performance and extending its usability.Volatile Storage: RAM automatically clears its data when the computer is turned off, reducing the risk of unwanted data accumulation.Disadvantages of RAMVolatility: Data stored in RAM is lost when the computer is turned off, which means important data must be saved to permanent storage.Cost: RAM can be more expensive per gigabyte compared to other storage options like hard drives or SSDs.Limited Storage: RAM has a limited capacity, so it cannot store large amounts of data permanently.Power Consumption: RAM requires continuous power to retain data, contributing to the overall power consumption of the device.Physical Space: Increasing RAM requires physical space in the computer, which might be limited to smaller devices like laptops and tablets.ConclusionIn conclusion, RAM (Random Access Memory) and ROM (Read-Only Memory) are two essential types of memory in a computer, each used for distinct purposes. RAM is a temporary, volatile memory used for storing data and instructions that the computer needs while it's running, making it crucial for the speed and performance of active tasks. In contrast, ROM is a non-volatile memory that permanently stores essential programs and instructions required for the computer to start up and perform basic functions. Random Access Memory, or RAM (pronounced as ramm), is the physical hardware inside a computer that temporarily stores data, serving as the computer's "working" memory. Additional RAM allows a computer to work with more information at the same time, which usually has a considerable effect on total system performance. Some popular manufacturers of RAM include Kingston, PNY, Crucial, and CORSAIR. There are many types of RAM, so you may hear it called by other names. It's also known as main memory, internal memory, primary storage, primary memory, memory "stick", and RAM "stick". Put simply, the purpose of RAM is to provide quick read and write access to a storage device. Your computer uses RAM to load data because it's much quicker than running that same data directly off of a hard drive. Lifewire / Kyle Fewel Think of RAM like an office desk. A desk is used for quick access to important documents, writing tools, and other items that you need right now. Without a desk, you'd keep everything stored in drawers and filing cabinets, meaning it would take much longer to do your everyday tasks since you would have to constantly reach into these storage compartments to get what you need, and then spend additional time putting them away. Similarly, all the data you're actively using on your computer (or smartphone, tablet, etc.) is temporarily stored in RAM. This type of memory, like a desk in the analogy, provides much faster read/write times than using a hard drive. Most hard drives are considerably slower than RAM due to physical limitations like rotation speed. RAM is typically referred to simply as "memory" even though other types of memory may exist inside a computer. RAM, which is the focus of this article, has nothing at all to do with the amount of file storage a hard drive has, even though the two are often incorrectly interchanged with each other in conversation. For example, 1 GB of memory (RAM) isn't the same thing as 1 GB of hard drive space. Unlike a hard drive, which can be powered down and then back on without losing its data, the contents of RAM are always erased when the computer shuts down. This is why none of your programs or files are still open when you turn your computer back on. One way computers get around this limitation is to put your computer into hibernation mode. Hibernating a computer just copies the contents of RAM to the hard drive when the computer shuts down and then copies all of it back to RAM when powered back on. Each motherboard supports only a certain range of memory types in certain combinations, so always check with your motherboard manufacturer before making a purchase. A standard module or stick of desktop memory is a long, thin piece of hardware that resembles a short ruler. The bottom of the memory module has one or more notches to guide for proper installation and is lined with numerous, usually gold-plated, connectors. Memory is installed in memory module slots located on the motherboard. These slots are easy to find— just look for the small hinges that lock the RAM in place, located on either side of the similarly-sized slot on the motherboard. skeeze / Pixabay. Certain sizes of modules may need to be installed in certain slots, so always check with your motherboard manufacturer before purchase or installation! Another option that might help is using a system information tool to see the specific type of modules the motherboard uses. Memory modules come in various capacities and variations. Modern memory modules can be purchased in 256 MB, 512 MB, 1 GB, 2 GB, 4 GB, 8 GB, and 16+ GB sizes. Some examples of the different types of memory modules include DIMM, RIMM, SIMM, SO-DIMM, and SO-RIMM. MB and GB are units of measurement for data. Knowing the differences is important when purchasing RAM and other data-centric devices and services. Chris Clor / Getty Images Just like with a CPU and hard drive, the amount of memory you need for your computer depends entirely on what you use, or plan to use, your computer for. For example, if you're buying a computer for heavy gaming, then you'll want enough RAM to support smooth gameplay. Having just 2 GB of RAM available for a game that recommends at least 4 GB is going to result in very slow performance if not total inability to play it (especially if the recommendation is 8 GB or more). On the other end of the spectrum, if you use your computer for light internet browsing and no video streaming, games, memory-intensive applications, etc., you could easily get away with less memory. The same goes for video editing applications, programs that are heavy on 3D graphics, etc. You can normally find out before you buy a computer just how much RAM a specific program or game requires, often listed in a "system requirements" area of the website or product box. It would be hard to find a new desktop, laptop, or even tablet that comes with less than 2 to 4 GB of RAM pre-installed. Unless you have a specific purpose for your computer apart from regular video streaming, internet browsing, and normal application use, you probably don't need to buy a computer that has any more RAM than that. The speed of a device is limited not just by the RAM but other components like the processor and hard drive, meaning that your computer could otherwise have high-end components but little RAM, which will affect the overall performance. The same is true in reverse: more RAM is great but won't make as significant of an impact if the CPU is slow. Chayapon Bootboonneam / EyeEm / Getty Images The first thing you should do if you suspect an issue with one or more RAM sticks is to reseat the memory modules. If one of the RAM sticks hasn't been securely inserted into its slot on the motherboard, it's possible that even a small bump could knock it out of place and cause memory problems that you didn't have before. If reseating the memory doesn't improve the symptoms, we recommend using one of these free memory test programs. Since they work from outside the operating system, they work with any kind of PC—Windows, Mac, Linux, etc. Your best option is to replace the memory in your computer if one of those tools identifies a problem, no matter how small. Though RAM is explained as a volatile memory in the context of this website (with regard to internal computer memory), it also exists in a non-volatile, non-alterable form called read-only memory (ROM). Flash drives and solid state drives, for example, are variants of ROM that retain their data even without power, but can be altered. There are many types of RAM, but the two main ones are static RAM (SRAM) and dynamic RAM (DRAM). Both are volatile. SRAM is faster but more expensive to produce than DRAM, which is why the latter is more prevalent in today's devices. However, SRAM is sometimes seen in small doses in various internal computer parts, like with the CPU and as hard drive cache memory. Some software, like SoftPerfect RAM Disk, can create what's called a RAM disk, which is essentially a hard drive that exists inside RAM. Data can be saved to, and opened from, this new disk as if it were any other, but read/write times are much quicker than using a regular hard disk because RAM is much faster. Some operating systems can utilize what's called virtual memory, which is the opposite of a RAM disk. This is a feature that sets aside hard disk space for use as RAM. While doing so can increase the overall available memory for applications and other uses, it may negatively affect system performance due to the fact that hard drives are slower than RAM sticks. People often draw parallels between computers and the human brain, and sometimes, it's an apt comparison. For example, both the brain and a computer have short- and long-term memory. RAM is where a computer stores its short-term memory. What Is RAM? RAM stands for Random Access Memory, and if you've ever opened a lap- or desktop computer, you've seen it. In the image above, you see modern RAM sticks for desktop PCs. They have a sleek casing that functions as a heat spreader. However, unless you're a high-powered overclocker, this is mostly about looks (and making them easier to install.) Laptops, meanwhile, often have more basic RAM sticks, as space concerns are paramount. Plus, unlike modern PC cases with transparent sides, people rarely see the inside of a laptop. However, you can get laptop RAM (especially for gaming models) with heat spreaders. Crucial"> Crucial So now, we know that those sticks in your PC's motherboard are system RAM, and they function as short-term memory, but what does that all mean in practice? Well, when you carry out actions on your computer, like opening a text document, it requires access to the data contained in that file. When you're not working on that document or you click save, the latest copy of that file is saved to the hard drive in long-term storage. When you're working on the file, however, the most recent data is stored in RAM for quicker access. This is true for spreadsheets, text documents, web pages, and streaming video. It's not just document data, either. RAM can also store program and OS files to keep apps and your computer humming along. RAM isn't the sole source of short-term memory, though. For example, a graphics card has its own graphics RAM and the processor has smaller data caches. Nevertheless, RAM is the key location for data that are actively being used by the system. RAM is made up of tiny capacitors and transistors capable of holding an electric charge that represents bits of data, similar to processors and other parts of your computer. This electrical charge needs to be constantly refreshed. If it's not, the capacitors lose their charge very quickly and the data disappears from RAM. The fact that data can be lost so quickly when the charge is gone is why saving any changed data to the hard drive or SSD is so important. It's also why so many programs have autosave features or cache unsaved changes in the case of an unexpected shutdown. Forensic specialists can retrieve data from RAM under special circumstances. However, most of the time, once you're done with a file or your computer shuts down, the information in RAM is gone. Corsair The most common form of RAM currently used is DDR4. It's the fourth version of Double Data Rate Synchronous Dynamic Random-Access Memory (DDR SDRAM). "Double data rate" means data can be transferred twice per clock cycle, as opposed to just once. Effectively, it means you double the memory bandwidth, and also refers to how quickly data can be moved into and out of RAM. Prior to DDR4, computers were using (surprise, surprise!) DDR3. It's not uncommon for computers to still be rocking DDR3 RAM. DDR4 came out in late 2014, and it didn't become the most common type of RAM until a few years later. RAM sticks are "keyed" to prevent people from mixing and matching different generations of it that are incompatible. If you look at the RAM stick shown above, for example, you'll see a small divot in the bottom row. On DDR4, that divot is in a different place, so that (along with other differences) makes it impossible to put a DDR3 stick into a DDR4 slot. RAM also comes in two types: DIMM and SODIMM. DIMM is used in desktop tower PCs and servers, while SODIMM is used in smaller devices, like laptops and compact desktops. Some premade computers (especially laptops) also have RAM modules directly soldered to the motherboard. When this is the case, there are no RAM sticks, which makes upgrading impractical. G.Skill While the basics of what RAM does are very simple, there are vastly different types, even among DDR4. For example, RAM functions at varying speeds, such as 2,400, 3,000, or 3,200 MHz. It also comes in different sizes, like 4, 8, or 16 GB. Generally, modern computers need two RAM sticks (called a kit) of the same size to run in what's called "dual-channel mode." Basically, this just means a PC is running on two sticks of RAM. Many people claim you can mix and match different RAM configurations, and that's mostly true. However, it's much easier to maintain a PC if its RAM is the same speed and capacity, and comes from the same manufacturer, in that order of importance. Getting RAM of the same voltage is also a concern, but a lot of desktop DDR4 is sold at a stock 1.35 volts, making this less of an issue. Laptops and earlier generations of RAM, however, are a different story. If you can't get the same make of RAM for a laptop, at least make sure you use the same voltage, speed, and capacity. How much RAM you can use also depends on what your motherboard can take. An aging laptop, for example, might only be able to handle up to an 8 GB DDR3. A modern desktop PC, though, might be able to take something like a 128 GB DDR4, depending on its processor and motherboard. For most people, though, 8 to 16 GB is plenty. There's a lot more to RAM than this basic overview. If you're overclocking, then voltages and timings become important. If not, though, you hopefully now have a better understanding of what RAM does, and why it's such an important component of your PC. RAM is an acronym and stands for Random Access Memory. It is one of the most vital components in your digital device whether it is a computer, desktop, laptop, Mac, console, or phone. For anyone wondering what RAM does, how it works in your computer, and why you might need to upgrade it for better performance, read on! What is RAM on a computer? RAM is the temporary memory in your computer that gives applications a place to store and access data on a short-term basis. Having more RAM means that more data can be accessed and read almost instantly, as opposed to being written on your hard drive or SSD. What does memory do in a computer? RAM allows your computer to perform its everyday tasks, such as loading applications, browsing the internet, editing a spreadsheet, or playing the latest game. Memory also allows you to switch quickly among these tasks while also remembering where you are in each task. Generally speaking, the more memory you have, the more easily your computer will be able to do multiple things at once. As an example of how this works, when you turn on your computer, check your email, open a browser, and then edit a spreadsheet, you'll have used memory in several different ways: to load and run apps like your spreadsheet program and email to respond to commands, like deleting an email and editing the spreadsheet to toggle between your open programs, like going back and forth from the spreadsheet to check your email to load one or more web pages into your browser You can think of memory like the top of your desk. It allows you to work on various projects at once. The larger your desk, the more papers, folders, and tasks you can have out at one time. You can quickly and easily access the information without having to thumb through slower storage like a filing cabinet (or your computer hard drive). Why is RAM important? The speed and performance of your system directly correlate to the amount and type of RAM you have installed. If your system doesn’t have enough RAM, it can be slow and sluggish, especially when you’re trying to multitask or having several programs or apps open at the same time. If you regularly get frustrated by unresponsive programs, lagging load times, and a generally slow computer, lack of RAM is probably to blame. There are ways to see if your computer needs more memory, and it's easy to upgrade your desktop or laptop RAM yourself. Larger RAM modules will give your computer more space. RAM size is measured in Gigabytes (GB). Faster RAM modules will also help your computer work more quickly. RAM speed is not important for most users, but if you work with very demanding applications like games, video production, or other intensive software, faster RAM could help. RAM speed is measured in Megahertz (MHz). RAM compatibility To prevent users from installing incompatible memory, modules are physically different for each memory technology generation. These physical differences are standard across the industry, so make sure you buy memory compatible with your motherboard or other components. RAM performance RAM performance is all about the relationship between speed and latency. At a basic level, latency is the time delay between when a command is entered and when the data is available. Understanding the speed and latency of RAM will help you better choose the correct RAM to install in your system based on your needs. What are the different types of RAM? Computer RAM is a critical component in a computer system, providing volatile storage that the processor uses to temporarily store and access data quickly. There are several types of RAM, each with its unique characteristics and use cases. Dynamic random access memory (DRAM) Dynamic RAM is one of the most common types of RAM used in computers. It stores each bit of data in a separate capacitor within an integrated circuit. However, DRAM needs to be constantly refreshed to retain data, which can impact its speed compared to other types. Static random access memory (SRAM) SRAM is faster than DRAM and doesn't require constant refreshing, as it stores each bit using a flip-flop circuit. Due to its faster access times, SRAM is often used in cache memory to provide quick access to frequently used instructions and data. Synchronous dynamic random access memory (SDRAM) SDRAM synchronizes with the system's clock speed, allowing for more efficient data transfers. This synchronization enables a steady flow of data, reducing delays in accessing information. Various types of SDRAM, such as double data rate (DDR) SDRAM, have evolved to provide increased data transfer rates. Double data rate (DDR) synchronous dynamic random access memoryDDR SDRAM transfers data on both the rising and falling edges of the clock signal, effectively doubling the data transfer rate compared to traditional SDRAM. DDR RAM has undergone several generations, with each iteration (such as DDR3, DDR4 and DDR5) offering increased performance and efficiency. Graphics double data rate (GDDR) synchronous graphics random access memorySpecifically designed for graphics processing units (GPUs), GDDR SDRAM focuses on high-speed data transfer to support the demands of graphics-intensive applications like gaming and video rendering. Similar to DDR RAM, GDDR has seen multiple generations, each enhancing memory bandwidth and performance. Non-volatile dual in-line memory module (NVDIMM) While most RAM is volatile and loses data when power is cut, NVDIMM combines the speed of traditional RAM with the non-volatility of storage. It retains data even when the system is powered off, making it suitable for applications where persistent memory is crucial. RAM vs. ROM RAM is volatile memory, which means its contents will be lost when the power is turned off. Read Only Memory, ROM, is a type of non-volatile memory, which means it can retain its contents without power. SSDs are another type of non-volatile memory, but they are not read-only. For more information see our dedicated article on the difference between RAM and ROM. Do you need to upgrade your RAM? Whether you are a gamer, designer, or just looking to speed up your personal computer, upgrading RAM is a simple and easy way to boost your system performance. To determine the right kind of memory for your computer, use the Crucial® System Selector or the Upgrade Selector. These tools will help you determine which memory modules are compatible with your computer and provide options for your speed requirements and budget. FAQs RAM stands for random access memory. It is called “random access” because the technology allows the computer to temporarily store and access data immediately. Outdated methods of storing data required sequential access, which was much slower. Determining how much RAM you need depends on what you use your computer for. It can range from 8GB of RAM for casual computer usage and internet browsing to 64GB for gamers and multimedia creators. Checking how much RAM you have on a PC or laptop running Microsoft Windows can be done within seconds. Open the System Information by typing it into the Start Menu From the list, scroll down to Installed Physical Memory (RAM) to see how much memory is installed You can find out how much RAM you have on your Mac in a few clicks. Click on the Apple icon in the top-left corner Select About this Mac Next to Memory you’ll see how much RAM is on your Mac RAM is used to store information that needs to be used quickly. This means that when you open many programs, run various processes, or access multiple files at the same time, you are likely to use a lot of RAM. Particularly complex programs like games or design software will require the most RAM.