

# The role of RAM and how much RAM is required to play games?

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When building or upgrading a gaming computer, you need to consider some components. Each component affecting computer performance in different ways and ignoring any component can lead to unstable performance.

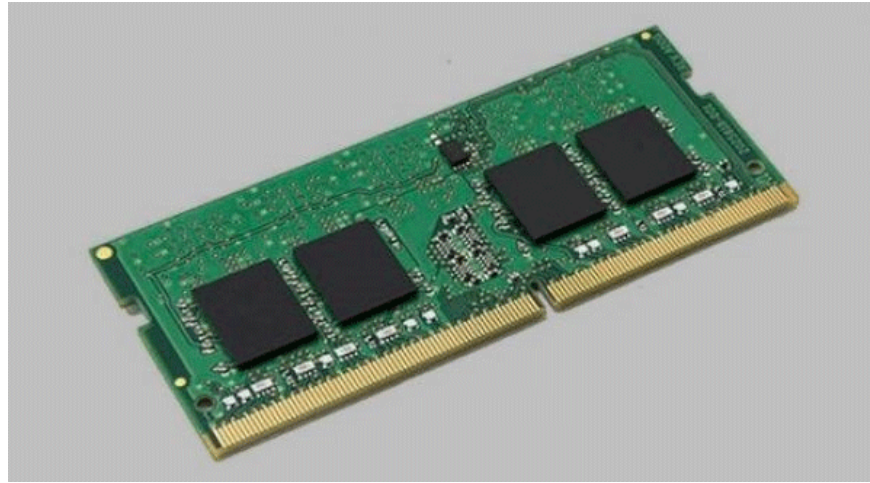
This article will focus on RAM, explore its role in playing games and the RAM parameters you need to consider when building a computer.

## The role of RAM when playing games

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2. Role of RAM during game play
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## What is RAM?

RAM stands for Random Access Memory, it is a short-term dynamic storage, temporarily storing computer information to access. When opening any program, the operating system saves it to RAM. Then when the computer is turned off, it will delete everything in RAM. If there is not enough RAM, the computer will be slow when opening too many programs.



1. 13 easy ways to free RAM make the machine run faster

## **Role of RAM during game play**

RAM is important because the system can access data faster than it is accessed from the main storage drive. Game data is stored on HDD or SSD, but the continuous data collection from this hard drive is not effective. Therefore the computer transfers necessary game information to RAM for faster loading.

With low RAM, the computer cannot store all the game information it needs to run, resulting in frame shock and poor performance. The lack of RAM may prevent the game from running.

One thing to note is that dedicated video cards have their own RAM, called vRAM. It is different from system RAM in that it is created with the purpose of sending graphics to the screen. So if you want to play games with a high resolution like 4K, you need a lot of vRAM.

1. How to increase VRAM in Windows 10

## **Is more RAM better?**

Because RAM makes the game download effectively, many people think that installing more RAM will increase performance. However, if there is more RAM, but the amount of information to be kept less, the amount of RAM will be wasted.

1. Does more RAM make a difference in gaming performance?

To help you better understand this section, we will take an example of a water container. You only have one tank of 2 liters of water but need to contain up to 4 liters of water, surely you cannot contain all of this water in a 2 liter container of water. However, if there is a 10 liter container but only contains 2 liters of water, it will be very wasteful.

The same goes for RAM. If you install 64GB RAM on the system but only use 2GB to play lightweight games at 720p, you will be wasting RAM.

## So how much GB of RAM is needed for the game?

8GB of RAM will suffice for regular PC games. Tests show that gaming performance doesn't improve much when using 16GB RAM compared to RAM 8GB.

Although you can use 4GB of RAM for older games, you should not build a new system with this little RAM. Because games are more complex, they need more RAM, 4GB will not be enough.

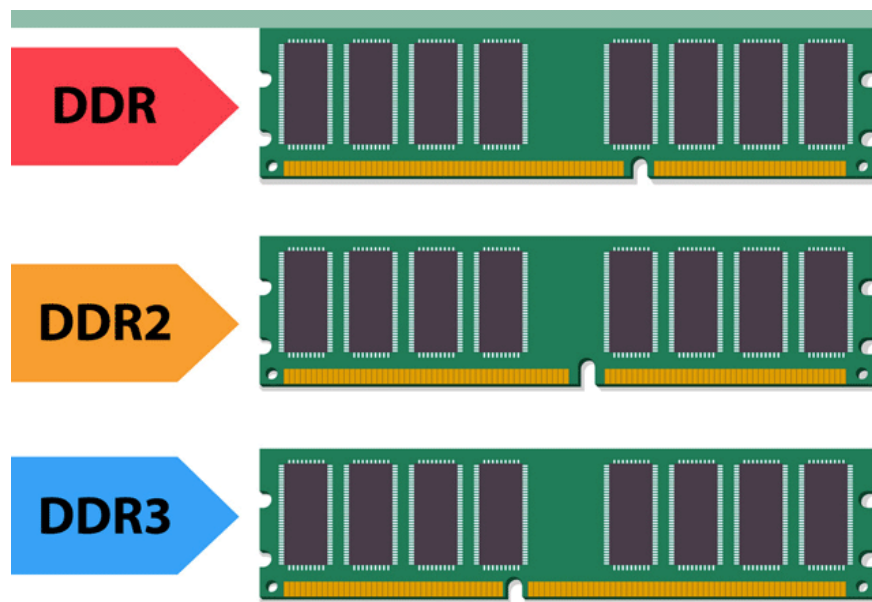
If you want to use your computer for a long time or serve heavy tasks like video editing, you should consider upgrading your computer with 16GB RAM.

1. How many GB of RAM does your computer need?

## Some RAM specifications for gaming computers

If you want to build a computer to play games, in addition to the amount of RAM you need to consider some of the following specifications.

### DDR



You will see the DDR symbol and version number on most RAM modules. DDR stands for Double Data Rate, it works twice on a pulse cycle. This technology has been developed with DDR2 versions and subsequent versions.

DDR2 is quite outdated, so you rarely meet it. You can also encounter DDR3 RAM but DDR4 is more popular because it is the current standard. Although DDR5 is growing, it is not yet available in the market.

1. Compare SDRAM, DDR, DDR2, DDR3, DDR4, and DDR5

Different generations of RAM are not compatible with each other, so you cannot plug a DDR4 RAM into the motherboard with DDR3 slots. If you plan to buy more RAM for your computer, make sure it matches the motherboard support. If the build is new, you should choose DDR4 as it is the best standard today.

## Clock speed

In addition to DDR, you will also see the number of clock cycles on the product page. They are measured in megahertz and show the number of RAM cycles that can be performed per second. For example 2666MHz RAM runs 2,666 billion cycles per second.

The higher the number, the faster RAM and smoother experience. However, it is not a strong improvement.

The DDR generation and the number of pulse cycles are correlated; For example, you won't see very fast numbers on ancient DDR2 RAM.

If using RAM with different clock cycles, it will run at the lowest frequency. The motherboard can also limit the available speed.

Sometimes you will also see a series of numbers listed on RAM, such as 5-9-5-23. These are called timing parameters and this is the required feedback RAM latency. Generally you don't need to care about this number, capacity and DDR generation are more important parameters.

## Number of RAM

When buying RAM, it is important to consider how many slots your motherboard has. Most motherboards support dual channel memory, which means that your system can use two RAM sticks at the same time but the performance improvement is not high.

Assuming you want to install 16GB RAM into the system, to take advantage of dual channel memory, you should buy two 8GB RAM sticks rather than a 16GB stick. If the motherboard has more than two slots, you need to install the RAM in accordance with the instructions for proper use.

We have looked at some of the roles of RAM in gaming computers. However remember that RAM is a relatively small part of gaming computers. You only need to have enough RAM and not too old, your computer can play games.

1. Instructions on how to upgrade RAM on computers and Laptops

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