

Used since the 1990s, nearly 30-year-old 'supercomputers' are still running 'ferry ferries' and play an important role in many countries.

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It can be said that the development of supercomputers is a major 'arms race' in the 1990s, when the US, China and other countries were competing fiercely in creating the fastest computer. And now, after many years have passed, along with the incredible development of the information technology world, the race for supercomputer development has also cooled down, however, 'monster' computers. This still proves its importance when used to solve many problems in the world.

1. Which country owns the most powerful supercomputers today?

When Moore's Law (built by Gordon Moore - one of the founders of the famous Intel chip manufacturing group: the number of transistors per square inch will double every year) pushing The development of human computer hardware goes a little further, the complexity of the problems that need to be solved also increases. Although 'primitive' supercomputers are often quite small, they can now occupy an entire warehouse, which is a combination of multiple computers connected together.

Why do these devices become supercomputers?



When it comes to the term supercomputer, we can think of a huge computer complex, which is made up of many small computers and for much more powerful computing and computing power. With your laptop or desktop device, even if it is your 'pro'.

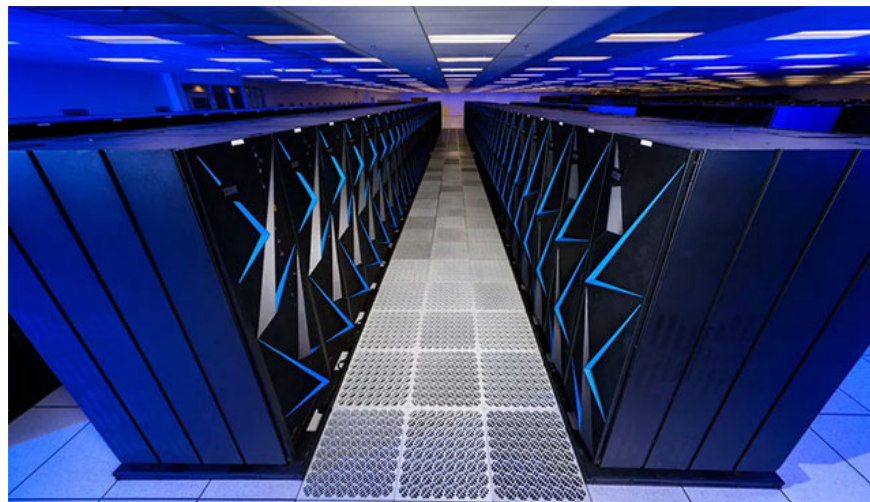
As mentioned, supercomputers are made up of thousands of smaller computers, all connected together to perform a task. Each CPU core in this data center may be slower than your desktop, however, the combination of all cores makes supercomputing processing power more efficient. There are many special networking and hardware devices related to these large-scale computer systems, and the setup is not just about putting each computer on a rack and plugging them into the network, But here we will not discuss much about connectivity issues in supercomputers.

In a supercomputer, not all tasks can be done in parallel easily, so don't expect an interesting scenario like using supercomputers to run popular games. currently at a rate of one million frames per second. Parallel computation usually only really works in increasing the speed of processing oriented calculations.

The power and performance of supercomputers is measured by FLOPS, also known as Floating Point Operations Per Second, which is basically a measure of how fast a supercomputer performs calculations. 1 tflops, or 1 teraflops (one trillion flops) is one trillion calculations per second, often used to measure the performance of a parallel supercomputer system. The fastest supercomputer today is IBM's "monster" named Summit, which can reach more than 200 PetaFLOPS, which is a million times faster than most commercially used computer systems. Popular use in the world today.

1. This is the most beautiful data center in the world, and it is placed in the church of God

So what are supercomputers used for?



In fact, the power of supercomputers will be utilized primarily in scientific research, especially in areas such as health and astronomy. People have used supercomputers in the medical field to run protein folding simulations for cancer research, in physics to run simulations for large engineering projects and theoretical calculations, and even in the entire financial sector to track changes in the stock market to gain an advantage over other investors.

However, the closest use of supercomputers in everyday life of humans is in weather forecasting. We have a habit of turning on the TV to see the weather forecast after each news program, watching the rain tomorrow, how sunny the other day and thinking that this is a simple job. But in fact, to calculate and synthesize meteorological information and give warnings and weather forecasts requires meteorologists to process billions of calculations. It is an incredible task for humans and we are forced to rely on the help of devices that can handle millions of billions of calculations every second. Huge supercomputers today can completely perform calculations and provide weather forecasts with very high accuracy.

There is a theory that to run the full weather forecasting model for all areas of the globe, we will need a supercomputer that is measured in ZettaFLOPS, which is faster than 5000 times the IBM monster above. It is forecasted that by 2030, such a supercomputer will be completed and put into use, however, the main problems that currently impede this ambition are not hardware, but at the expense of huge costs. giant

Overall, the investment cost for a supercomputer system from research and development to hardware and assembly is huge. But the benefits are quite adequate. In addition, it is necessary to mention the cost of maintaining this equipment. Many supercomputers can cost millions of dollars each year just to keep running. So, theoretically, there is no limit on how many buildings to build with computers that can connect them together into a giant supercomputer, we simply build building supercomputers large enough to solve current problems or be better than in the near future only.

1. The most powerful supercomputer today, has 1 million processing cores, equal to 1% of human brain power

Can we own a 'household-scale' supercomputer in the future?



Whether this is proud or not, most desktop computers today can compete with the power of 'old-fashioned' supercomputers, even even smart phones. The current medium also has higher performance than the once notorious Cray-1s. Therefore, it is very easy to compare with the past and hypothesize about the future. However, this is largely because the average CPU speed has become much faster over the years. The current CPU speed is still improved year by year, but is no longer as clear as before.

After all, you don't need a supercomputer just to surf the web or plow three simple games. The processing power of high-end commercial hardware products today has also surpassed those of normal use and is often designed specifically for specific tasks such as 3D design, code translation or professional gaming.

1. Compare smartphones and desktops: Why is the phone slower than a computer?

In short, supercomputers are something that sounds cool, but in reality you won't need to use it for everyday tasks. The things you should be interested in at the moment are the computer's mobility while ensuring strong enough performance. As smartphones and tablets gradually reach the limit of desktop power, you'll realize that convenience is essential. As for the supercomputer models, they are still indispensable devices for human development.

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