

How long is SSD lifespan? How to estimate SSD drive life

How long is the lifespan of SSDs and HDDs? When should I use an SSD? Let's help TipsMake answer all questions about SSD hard drive lifespan in this article.

Most desktop and laptop computers today use SSD drives, which are faster, smaller and more efficient than HDD drives. However, the price of SSD hard drives is much more expensive. To compare HDD and SSD, there will be many different angles such as speed, storage capacity or price. In this article, TipsMake will only focus on learning about SSD lifespan and the difference in lifespan between the two storage hard drives above.

When should you use SSD and HDD?

SSD and HDD are two popular types of hard drives on the market today, chosen by users to store data on computers.

However, each type will have different characteristics, capacity and access speed, so they are also used for different purposes such as:

1. **HDD** has a huge capacity to help users store more data and has high security to avoid data loss. In particular, the HDD can also back up data on the PC in some emergency cases. Therefore, this type of drive is often chosen to store important data.
2. **SSD drives** are often chosen by users to store operating systems or high-configuration game applications on computers because of their fast read and write features, high access speed and low storage capacity.

Picture 1 of How long is SSD lifespan? How to estimate SSD drive life

Outstanding studies on SSD lifespan

It is difficult to accurately measure **the lifespan of an SSD**, users can only objectively evaluate the storage capacity when the SSD reaches its limit. If the limit is exceeded, the possibility of data loss is very high.

Tech Report's research on SSD lifespan through major brands

The Tech Report team determined the lifespan of SSD hard drives through research of 6 major brands. Accordingly, SSDs from high-end brands such as Samsung, Kingston and Corsair have a lifespan, reading and writing data of more than 1000 terabytes.

With **cheap SSD hard drives** , using normal MLC chips will only maintain operation in the range of **700 - 900 terabytes** , including brands like Samsung or Intel.

Thereby, the research team came to the conclusion: An **SSD with a capacity of less than 250GB** will 'suddenly die' after recording nearly **1000 terabytes** .

Besides, if you use an SSD using high-end memory chips, you will have more free space to read and write data and have a slightly longer lifespan. For example, the Samsung 840 SSD currently uses a cheap MLC chip with a capacity of about 256GB and will die at 900 terabytes of data, while a 1TB hard drive can last about 3.6 petabytes longer. .

Picture 2 of How long is SSD lifespan? How to estimate SSD drive life

Google research in collaboration with the University of Toronto on the potential for data loss on servers

The research team has shown that when **an SSD** is used continuously after a long period of time, it is the main cause of the drive being damaged and unusable, even though the number of times it reads and writes data is not much.

Furthermore, under the same conditions of use and working with high frequency and fast data reading speed, the number of **HDDs that need to be replaced is 4 times higher than that of SSDs** . But in return, the possibility of an SSD suddenly 'dying' and not being able to be repaired is more likely than an HDD within 4 years of use.

Based on that basis, the research team concluded that: In a working environment with high frequency of use, requiring fast read and write speeds, SSD will have a longer life than HDD, but it also often encounters problems. more minor errors. Besides, if an SSD is used for a long time, it is likely to 'die' at any time, much higher than an HDD regardless of the total amount of terabytes recorded.

Picture 3 of How long is SSD lifespan? How to estimate SSD drive life

Research conducted by Facebook on the lifespan of SSD drives used in industrial data systems

Research shows that **frequent exposure to high temperatures will affect SSD lifespan** . One interesting thing during the research process that the team found is that if the SSD does not 'launch' after the first serious error occurs, it will live much longer than the life expectancy predicted by health diagnostic software. healthy hard drive given.

Facebook stated that the frequency of reading and writing data has a direct impact on hard drive life, which is completely opposite to Google's research. But we're not sure whether Facebook tests the current lifespan of the SSDs they're researching.

Finally, Facebook concluded that the lifespan of SSDs is much higher than predicted by hard drive health diagnostic software. Because these software rely on three standard lifespan factors: Number of terabytes of data that the hard drive can record, total amount of data that can be written per unit of time, and user usage. . For each different usage need, these factors will give different results.

How long is SSD lifespan? How to estimate SSD lifespan

Based on research, **the lifespan of an SSD hard drive will only last about 1 - 2 years** .

Note, this is only the time applicable to 24/7 continuous operation and is often used in large industrial data centers with maximum read and write frequency. Furthermore, research teams regularly apply very heavy tests to the SSDs under test.

Currently, manufacturers estimate the lifespan of SSDs through two main methods:

1. Calculate the total amount of terabytes (TB) of data that the hard drive can read and write during use.
2. The total amount of data that a hard drive can read and write in a certain period of time (for example, an hour, a day, a week).

How long is HDD lifespan? How to estimate HDD lifespan

The lifespan of an HDD is much longer than that of an SSD . If there is no external physical impact such as fire, explosion, short circuit, etc., it can be used for more than 4 years under 24/7 continuous operation conditions. According to studies, up to 80% of tested HDDs still work quite well.

In general, the process of measuring the life of an HDD is similar to that of an SSD. However, HDD drives use rotation speed to read and write data, so manufacturers also care about physical conditions that directly impact the rotation of HDD drives.

SSD or HDD: Which hard drive is more durable?

In terms of longevity or data storage capacity, using an HDD is the perfect choice. This type of drive is very suitable for the nature of work that requires storing a lot of data.

But if you want to increase data reading and writing speed to make your computer experience more wonderful, and quickly open the operating system in just a few seconds, then SSD is an effective solution for you.

Currently, to bring trust and choice as well as improve service quality for users, manufacturers when distributing SSD products on the market are committed to a long-term warranty of 3 - 5 years. .

Epilogue

Normally, SSD drives will be warranted by manufacturers for 3 - 5 years. Therefore, you can completely rest assured to choose and use. Thank you for your interest and following the article, don't forget to share this useful information with everyone around you.

You finished reading the article "**How long is SSD lifespan? How to estimate SSD drive life**" edited by the [TipsMake](#) team. We hope this article has provided you with many useful tech tips and tricks. You can search for

similar articles on tips and guides. Thank you for reading and for following us regularly.
