Hard Drive vs Solid State Drives

By: PC Tech UpTime, Inc.
Computer Repairs & Services
(828) 400-7271

HARD DRIVE vs SOLID STATE DRIVES

If you want to breathe new life into an older computer whether you have a PC or a Mac and it is currently working fine,or one that has begun to slow down dramatically from the time it was brand new! My tip here is to give you a snap-shot of what is available to make such a significant change on an older computer. This is an upgrade that you'll wonder why you didn't do it sooner.

Since the personal computer first hit the mainstream market there has been a battle to stay on top of the cutting edge of technology. Software and hardware engineers see new opportunities everyday to improve the function of computers in general. The downside of this struggle is preventing the consumer from becoming dis-interested in computers because of the computer's aging problem when new software gets introduced and the computer's reaction time slows to a crawl. This issue can cause you and I to stop buying computers all-together. This is sometimes called the boat syndrome: A hole in the middle of a lake that you constantly pour money into, sometimes to the buyers detriment.

Technicians all have different ways to estimate a computer's value from the date it was purchased both in it's usefulness, and cost effective investment. So, the owner must always make a judgment call when they determine either to "Spend more money to improve functionality of their existing computer", or to say, "This horse is dead in the water", let's move on!

This brings us to the quickest fix possible! At this point It is necessary to say what were talking about here only fixes slow performing computers if the processor or motherboard are good and not overheating. Then the hard drive is usually the cause of slow performance. An over heated processor can sometimes mimic symptoms associated with hard drive failure, so upgrading to a Solid State Hard Drive will not help in that case.

TWO COMPUTER ENEMIES
A computer has two main enemies that are often preventable. They are overheating of the processor(s) and the power supply. Both of which are caused by combining **dust and restricted air-flow**. Dust can build up normally on internal components. It can be cleaned easily by using Canned-Air to blow out the vents and key components. **Air restriction** is simply that your computer is not moving air fast enough over and through key parts like the Power Supply, and Processor(s) to keep them at safe temperatures.

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Other than dust issues that cause this problem, another reason is blocked air vents, usually on the bottom, sides, or back of the computer case. In the case of a Laptop sitting it on top of a blanket, soft table cloth, or clothes you wear when a laptop sits directly on a users lap. If you have pets avoid letting them lay on or near a computer. Animal hair is worse than dust at clogging and overheating your equipment....OK enough of this!

So, for the sake of time here, and with this small summary of facts consider that the most common cause of computer hardware slow down is the hard drive. As in all things of science "everything only goes as fast as the slowest part". When it comes to computers that part is usually the hard drive. The hard drive is filled with moving parts, and although a hard drive is generally vacuum sealed, the parts do wear-out over time.

LET'S BEGIN...

Technology on the new Solid State Hard Drives has broken barriers in data storage transfer speeds. When actual hard drives were introduced the common speed was 4200 rpm (the Rotation speed Per Minute). As they improved the 5400 rpm units hit the market and Business users clamored for faster access speeds. Manufacturers delivered the 7200 rpm as well as high-end 10,000 rpm drives hit the market. Although you will rarely see a 10,000 rpm hard drive because of their cost and power usage. The 7200rpm has become the most popular in desktop computers and gaming laptops.

The sad part is that faster hard drives mean more power consumption and heat, especially in laptops. But, laptops were already handicapped by poor battery life, so to keep manufacturing cost lower and heat at a manageable level many manufacturers of economy computers chose to use the slower 5400 rpm drives, Computers that are equipped with slower processors run cooler and offer less speed from the hard drive. Whereas faster model computers have larger batteries and high-end processors. This still leaves a large gap between cost and having a computer that actually got things done quickly and efficiently.

Then the dawn of storage devices took a skyrocketing change. Just think of a drive that used half the power and was twice as fast at the minimum along comes the dawn of SSD (Solid State Drives). These were invented in the 1970s to 1980s. But were extremely expensive, and were used in large super computers like the IBM Mainframe computers that filled entire warehouses. The SSD was far to

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PC Tech UpTime, Inc.
P.O. Box 41, Maggie Valley, NC 28751

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expensive to market to the public. Even the storage size of solid state drive has always been low. The cost of an SSD traditionally has been extremely more expensive than a regular hard drive.

Over the past several years the economic value of an SSD has finally dropped significantly. This is a good thing for you and I in the everyday world of computers. There is no way I can cover all the technical details that surround an SSDs. But, what I can say is that by upgrading a computer whether that is a desktop or a laptop, the speed will dramatically increase, and power consumption will decrease.

Put simply the big difference is that an SSD, or Solid State Drive has no moving parts! Thus, much lower power demand than a conventional hard drive with many moving parts and a motor. Now because the moving parts are eliminated that data travels extremely fast ultimately speeding up everything your computer does.

Before you determine to make this upgrade determinewhether your speed problem is hardware damage of other parts within the computer or the hard drive.
Here are a few images of a <u>hard drive vs. a Solid State Drive</u> (SSD)

Pros of an SSD...

- At least twice as fast as a 7200 rpm hard drive
- Much less power needed to function.
- Greatly reduce amount of heat.

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- **Cons of an SSD...**

- Storage size per dollar is much more expensive than a hard drive
- Solid State Drives are limited to a 2.5 inch form factor requiring an install kit for desktop systems that have 3.5" drive(s) in them. Installations of a kit (allows you to install a 2.5 inch drive into a 3.5 inch bay slot. Size in not an issue with a laptop because laptop hard drive bays are made for 2.5 inch drives. Just be aware that adapters are available so you can convert a SSD to fit a desktop computer.

The companies that manufacture Solid State Drives are many. It is better just to list a few of the top manufacturers below.

- Samsung
- OCZ
- Crucial
- Kingston
- Western Digital
- Seagate
- Intel

I'm sure you'll find at least a dozen more manufacturers out there, but this gives you an indication about how many companies believe this product is something you might buy in the future. I have found Samsung to be the best "Value for the dollar" it is an investment that is both cost and reliability effective.

SO WHAT'S NEXT, YOU MIGHT ASK?

1. Backup all important data before attempting any further action.
2. Determine if your installation is in a desktop or a laptop. A desktop needs an adapter KIT
3. Decide how to reload your current system to your new drive
4. Recovery Disks, or retail System installer DVDs, or USB devices.
5. System Clone Software (copies an exact current system image to the new drive) sometimes this software is free with the SSD you purchase. Most Macs have a built in clone feature. Another

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product you can buy is Acronis which among other things includes a clone drive feature.

6. Be sure you use the proper tools, and a Static Strap to install your new drive.

In the big picture you will have to decide whether to attempt installation yourself or seek professional help. Determine the true dollar value of your computer and data before you begin. Some new computers come equipped with a Solid state drive (SSD).

A good rule of thumb when making this decision is to evaluated how valuable your data is, and whether your computer is older than four years old. An SSD of 512 GB costs approximately $100 to $250.

Whereas a 1024 GB drive (1 TB) will set you back about $85 to $120. Then there is the Operating System reinstall, or to Clone. And the Physical installation of the drive. This could take from 2 to 4 hours. With all that said, it is very important that you have access to a currently working hard drive on your computer to begin with. Without a currently functioning hard drive you may need to purchase Recovery Disk, or Flash Drive unless you made them when you bought your computer new!

This should be enough information to help you decide whether to do that upgrade or not!

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Call us today to setup an appointment to review your situation and recommend what would fit into your budget, and needs. (828) 400-7271. We also just added a catalog of discount Antivirus and Internet Security. You can get a price quote by calling us or email with your needs. We accept now credit cards to allow users to security purchase software of your choice with a license key and download link so you can install it yourself, or make an appointment for a technician to install your software professionally.

Check out our company website for a link page:
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http://www.pctechuptime.com/backup.html   Backup Choices
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info.pctechuptime.com

Thank you!

By: PC Tech UpTime, Technician

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