

Surge in PC Usage Creates New Storage Demands

Rise in collaboration, video streaming, and gaming applications drives need for fast, secure disk systems



Interest in PCs is at a ten year high. Why? The pandemic significantly changed business and personal computer requirements. Enterprises shutting down and individuals locking themselves up created a dramatic uptick in demand for high bandwidth applications. They push the limits of traditional systems, so users need a sophisticated device with lightning fast, secure reads and writes.

The pandemic's impact was sudden and dramatic. In a snap, corporations shut down, schools closed, and life as it was known changed significantly.

The applications that individuals rely on shifted as well. Rather than simple productivity solutions, like word processing programs or spreadsheets, they engulfed rich multi-media software.

Collaboration is one area where a boom occurred. With social distancing rules in force, new ways to sell and support products and services arose. Many people spend their day working with conferencing applications, like Zoom or Microsoft Teams.

Individuals and families are not able to attend social or sporting events so substitutes were needed. Streaming video is an area that saw a major uptick in usage. Worldwide console games sales ballooned from \$40.6 billion in 2019 to \$57.9 billion in 2020, a 42.6% increase, according to The Business Research Company.

Smartphones are Not Enough

In this new world, interactions shifted away from in person to virtual. In many cases, a smartphone could not meet users' needs because it lacked sufficient screen size and processing power. Employees working at home, children attending virtual classes, and the rise in digital entertainment spurred US PC sales to a ten year high and worldwide sales increased by 9%, according to [Gartner Inc.](#)

But new challenges arose. Latency is especially disruptive with these new PC use cases. There is nothing more annoying than having a screen freeze or a voice fade when holding a conversation, watching a

movie, or being poised to blow up your enemy in a video game.

Ensuring strong performance starts with the core system. Users require devices that move information rapidly from storage systems to core processors and back again. Solid State Drives (SSDs) work much faster than traditional Hard Disk Drives (HDD). As a result, users gain faster boot-ups, file searches, and application start-ups

Furthermore, computers require electricity, which costs money, and customers desire solutions that chew up less power. SSDs have fewer moving parts and consume up to 3x watts less power than HDDs. Consequently, over the lifetime of the system, an SSD customer's electricity costs are lower than an HDD user.

Consequently, SSDs have been gaining market traction. Currently, SSDs are used in 88% of notebooks and that number is expected to reach 100% in 2024 according to [Gartner](#).

Pick the Best SSD

However, not all SSDs are created equally. Some products have more robust architectures and perform better than others. Form factors is one area of differentiation. Workstations, tablets, and laptops come in various sizes and shapes. Standards, such as those from JEDEC (Joint Electronic Device Engineering Council), provide common interfaces for a wide range of systems. In many cases, businesses need devices supporting 2.5", M.2 PCIe® and M.2 SATA connectors, so companies must take a vendor's product breadth into consideration when making a purchasing decision.

Focus on Performance

Heat and cold sometimes impact SSD performance. An SSD with a built-in temperature sensor and dynamic thermal throttling functionality ensures that the device remains within the temperature safety

range. Once sensors determine that an SSD operating temperature is too high, it issues a warning, activates dynamic thermal throttling system, lowers SSD transmission speeds, and dissipates the heat. The feature safeguards data integrity and equipment safety; increases system stability; and extends SSD life.

Other features reduce electric consumption. OVP (Over Voltage Protection)/OCP (Over Current Protection): protects SSD systems. It shuts a system down in the event of abnormal voltage or current due to a faulty power supply. This function prevents damage to disk drive components and ensures that data reads and writes are completed.

As systems become powerful, they consume more electricity, which increases user costs. ELPM, also known as Device Sleep (DEVSLP), reduces power consumption. When ELPM is activated, the SSD is essentially idle mode, power consumption is lower than 5 (mW), but the system can be woken up in 20 (ms). ELPM dramatically reduces system power consumption, improves system performance, and increases drive longevity.

Security is Job 1

Individuals and companies store sensitive information on their PCs. Consequently, a strong SSD includes a number of security features. The Trusted Computing Group (TCG) is a consortium that establishes industrial computing standards TCG Opal is its storage specification:

- Both encryption and decryption are automatically executed within the device without being processed by a host
- Encryption keys are stored in the device with AES-128 or AES-256 advanced encryption standard.
- Prior to power up, authentication is required. The user must enter a Shadow MBR, and only after it is passed will a power-up procedure be initiated.

When choosing an SSD, hardware vendors have many options. Solid State Storage Technology Corp. (SSSTC) offers a comprehensive lineup of high-performance customizable SSDs for the enterprise,

industrial, business, and consumer markets. Its solutions' form factors and interfaces simplify storage infrastructures, accelerate variable workloads, improve efficiency, and reduce Total Cost of Ownership (TCO). SSSTC SSDs are already in Tier 1 PC manufactures so why aren't they in yours?

Our SSD Solutions

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- Slim form factor— M.2 2280
- Random read/write up to 1000K/1000K IOPS
- Low latency
- LDPC technology



CL1 Series

- Slim form factor— M.2 2280
- Random read/write up to 140K/200K IOPS
- Low latency
- LDPC technology

Specifications and features are subject to change without prior notice. Images are samples only, not actual products. Please check with an authorized SSSTC representative for details.

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