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1. **What is Cache Memory?**

Ans :- Cache memory is a chip-based computer component that makes retrieving data from the computer's memory more efficient. It acts as a temporary storage area that the computer's processor can retrieve data from easily. This temporary storage area, known as a [cache](https://searchstorage.techtarget.com/definition/cache), is more readily available to the processor than the computer's main memory source, typically some form of [DRAM](https://searchstorage.techtarget.com/definition/DRAM).

In order to be close to the processor, cache memory needs to be much smaller than main memory. Consequently, it has less storage space. It is also more expensive than main memory, as it is a more complex chip that yields higher performance.

**Types of cache memory**

**L1 cache**, or primary cache, is extremely fast but relatively small, and is usually embedded in the processor chip as CPU cache.

**L2 cache**, or secondary cache, is often more capacious than L1. L2 cache may be embedded on the CPU, or it can be on a separate chip or [coprocessor](https://whatis.techtarget.com/definition/coprocessor) and have a high-speed alternative system bus connecting the cache and CPU. That way it doesn't get slowed by traffic on the main system bus.

**Level 3 (L3) cache** is specialized memory developed to improve the performance of L1 and L2. L1 or L2 can be significantly faster than L3, though L3 is usually double the speed of DRAM. With [multicore processors](https://searchdatacenter.techtarget.com/definition/multi-core-processor), each core can have dedicated L1 and L2 cache, but they can share an L3 cache. If an L3 cache references an instruction, it is usually elevated to a higher level of cache.

1. **What is Disk Management?**

Ans:- Disk Management is an extension of the Microsoft Management Console that allows full management of the disk-based [hardware](https://www.lifewire.com/computer-hardware-2625895) recognized by Windows.

Disk Management is used to manage the drives installed in a computer—like [hard disk drives](https://www.lifewire.com/what-is-a-hard-disk-drive-2618152) (internal and [external](https://www.lifewire.com/what-is-an-external-drive-2625867)), [optical disk drives](https://www.lifewire.com/what-is-an-optical-disc-drive-2618157), and [flash drives](https://www.lifewire.com/what-is-a-flash-drive-2625794). It can be used to [partition](https://www.lifewire.com/what-is-a-partition-2625958) drives, [format](https://www.lifewire.com/what-does-it-mean-to-format-something-2625882) drives, assign drive letters, and much more.

**Availability of Disk Management**:- Disk Management is available in most versions of Microsoft Windows including [Windows 10](https://www.lifewire.com/windows-10-2626217), [Windows 8](https://www.lifewire.com/windows-8-2626235), [Windows 7](https://www.lifewire.com/windows-7-2626265), [Windows Vista](https://www.lifewire.com/windows-vista-2626311), [Windows XP](https://www.lifewire.com/windows-xp-2626354), and Windows 2000.

The Disk Management tool has a graphical interface like a regular program and is similar in function to the command line utility diskpart, which was a replacement of an earlier utility called fdisk.You can also use Disk Management to [check free hard drive space](https://www.lifewire.com/how-to-check-free-hard-drive-space-in-windows-2619187). Look under the **Capacity** and **Free Space**columns (in the Disk List or Volume List view) to see the total storage capacity of all the disks as well as how much free space is remaining, which is expressed in units (i.e. MB and GB) as well as a percentage.

Disk Management has two main sections—a top and a bottom:

The top section of Disk Management contains a list of all the partitions, formatted or not, that Windows recognizes.

The bottom section of Disk Management contains a graphical representation of the physical drives installed in the computer.

Here are some common things that you can do in Disk Management:

* [Partition a drive](https://www.lifewire.com/how-to-partition-a-hard-drive-2626081)
* [Format a drive](https://www.lifewire.com/how-to-format-a-hard-drive-2626077)
* [Change a drive's letter](https://www.lifewire.com/how-to-change-a-drive-letter-2626069)
* Shrink a partition
* Extend a partition
* Delete a partition
* Change a drive's [file system](https://www.lifewire.com/what-is-a-file-system-2625880)

1. Cache vs RAM?

Ans :-

|  |  |
| --- | --- |
| **CACHE** | **RAM** |
| Read/Write rate of cache memory is quicker than RAM. | Read/Write rate of RAM is slower than Cache Memory. |
| Cache Memory is more valuable than RAM. | RAM is limited expensive than Cache Memory. |
| Cache Memory is used to save more frequent data. | RAM is used to store less redundant data. |
| CPU reads Cache Memory before holding RAM. | CPU reads RAM after expressing Cache Memory. |
| Internal and external both can be in Cache memory. | RAM is commonly internal. |

1. HDD vs SSD?

Ans :-

|  |  |  |
| --- | --- | --- |
| **PROPERTIES** | **SSD** | **HDD** |
| **Power Draw / Battery Life** | Less power draw, averages 2 – 3 watts, resulting in 30+ minute battery boost | More power draw, averages 6 – 7 watts and therefore uses more battery |
| **Cost** | Expensive, roughly $0.20 per gigabyte (based on buying a 1TB drive) | Only around $0.03 per gigabyte, very cheap (buying a 4TB model) |
| **Capacity** | Typically not larger than 1TB for notebook size drives; 4TB max for desktops | Typically around 500GB and 2TB maximum for notebook size drives; 10TB max for desktops |
| **Operating System Boot Time** | Around 10-13 seconds average bootup time | Around 30-40 seconds average bootup time |
| **Noise** | There are no moving parts and as such no sound | Audible clicks and spinning can be heard |
| **Vibration** | No vibration as there are no moving parts | The spinning of the platters can sometimes result in vibration |
| **Heat Produced** | Lower power draw and no moving parts so little heat is produced | HDD doesn’t produce much heat, but it will have a measurable amount more heat than an SSD due to moving parts and higher power draw |
| **Failure Rate** | Mean time between failure rate of 2.0 million hours | Mean time between failure rate of 1.5 million hours |
| **File Copy / Write Speed** | Generally above 200 MB/s and up to 550 MB/s for cutting edge drives | The range can be anywhere from 50 – 120MB / s |
| **Encryption** | Full Disk Encryption (FDE) Supported on some models | Full Disk Encryption (FDE) Supported on some models |
| **File Opening Speed** | Up to 30% faster than HDD | Slower than SSD |
| **Magnetism Affected?** | An SSD is safe from any effects of magnetism | Magnets can erase data |