

Memory Types

Introduction

- “A computer memory refers to computer components, devices and recording media that retain digital data for some interval of time.” (wikipedia.org)

Memory Types

- The available memory can be categorized into the following categories:
 - Primary Storage
 - Secondary Storage
 - Tertiary Storage
 - Off Line Storage

Primary Storage

- Primary storage is the only type of storage accessible directly to the CPU.
- RAM (Random Access Memory) is the most common type of primary storage.

Secondary Storage

- Secondary storage is not directly accessible by the CPU.

Computers usually use their input/output channels to access it.

Hard disks are the most common type of secondary storage used in modern computers. Other common types of secondary storage include flash memory (e.g. USB Memory Sticks), floppy disks and magnetic tape.

- Secondary storage is usually formatted in accordance with the file system format.

That allows us to store the data in an organized way into files and folders.

Secondary Storage

- Many computers use the virtual memory technique allowing them to use secondary storage as primary one.

Tertiary Storage

- This is the third level of storage, usually involves with using a robotic mechanism that mount and dismount removable mass storage media into a storage device.

Magnetic tapes libraries is one example for this type of storage.

Off Line Storage

- Memory storage on a medium or device that is not in the control of the CPU.

Separated USM memory stick, floppy disks, DVDs etc.. are the most common examples for off line storage.

Memory Volatility

- Memory can be either volatile or non-volatile.
- Being a volatile memory means there is a need in a constant power to maintain the stored data.
- Being non-volatile means the memory will continue to retain the stored data even if the electric power is off.

Volatile memory is faster than a non-volatile one. For that reason, primary memory is usually a volatile one.

Memory Accessibility

- Memory can be characterized either as a random access memory or as a sequential access one.
- Random access memory can be accessed at any moment in approximately the same amount of time.
- Sequential access memory means that accessing the data is done in a serial order.

For that reason, the time required to access a specific piece of data depends on the piece of data that was last accessed.

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