

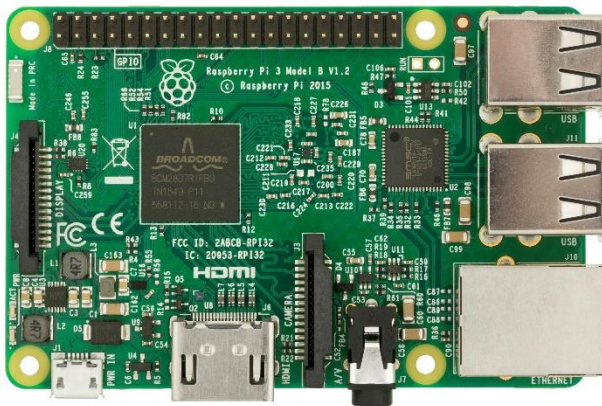
## Difference between Primary Memory and Secondary Memory

الفرق بين الذاكرة الرئيسية والذاكرة المساعدة ؟؟؟

Memory is the brain of the computer which stores data and information for storing and retrieving. Just like a human brain, memory is the storage space of the computer – like a physical device – that is capable of storing data or programs temporarily or permanently.

تعتبر الذاكرة هي عقل الحاسوب الذي يقوم بتخزين البيانات والمعلومات واسترجاعها. مثل ذاكرة الانسان حيث لها القدرة على تخزين المعلومات بشكل دائم او مؤقت.

Memory is a fundamental component of the computer that is categorized into primary and secondary memory. Primary memory is the main memory of the computer which can be directly accessed by the central processing unit, whereas secondary memory refers to the external storage device which can be used to store data or information permanently. While both serve the same purpose; that is to store data or instructions for further processing by the CPU, they do it very differently. Let's take a look at the two in detail.



# What is Primary Memory?

## الذاكرة الرئيسية

ما هي

Primary memory, also known as the main memory, is the area in a computer which stores data and information for fast access. هي الذاكرة التي يتم تخزين المعلومات فيها من اجل تخزين البيانات والمعلومات بشكل اسرع

Semiconductor chips are the principle technology used for primary memory. It's a memory which is used to store frequently used programs which can be directly accessed by the processing unit for further processing. It's a volatile memory meaning the data is stored temporarily and lose in case of power failure.

Every application on the computer first loads into the random access memory (RAM) which makes is faster to access.



# Secondary Memory

## الذاكرة الثانوية

On the contrary, secondary memory is the external memory of the computer which can be used to store data and information on a long-term basis.

It's a non-volatile غير متطايرة memory which means data stays intact سليم even if the computer is turned off. Data cannot be directly processed تعالج by the processing unit in secondary memory; in fact, it is first transferred into the main memory and then it's transferred back to the processing unit.

Secondary memory refers to all external storage devices that are capable قادرة of storing high volumes of data such as hard drives, floppy disks, magnetic tapes, USB flash drives, CDs, DVDs, etc. It's generally slower than primary memory but can store substantial amount of data, in the range of gigabytes to terabytes.

# Difference between Primary and Secondary Memory الفرق بين الذاكرة الرئيسية والمساعدة

## 1. Basics of Primary and Secondary Memory

Memory plays a critical part جزء اساسي ومهم in computers to store and retrieve data. Computer memory is categorized into primary and secondary memory. While primary memory is the main memory of the computer which is used to store data or information temporarily, whereas secondary memory refers to external storage devices that are used to store data or information permanently.

## 2. Access of Primary and Secondary Memory

Primary memory holds only those data or instructions which the computer is currently processing allowing the processor to access running applications and services that are stored temporarily in a specific memory address. Secondary memory, on the other hand, is persistent مقاومة in nature which means instructions are transferred to the main memory first and then re-routed to the central processing unit.

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### 3. Data in Primary and Secondary Memory

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In primary memory, data is directly accessed by the processing unit and it resides in the main memory until processing. Information and data are stored in semiconductor chips so they have a limited storage capacity. In secondary memory, information is stored in external storage devices and they cannot be directly accessed by the processing unit.

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### 4. Nature of Primary and Secondary Memory

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Primary memory is volatile in nature which means data or information stored in the main memory is temporarily which may lead to loss of data in case of power failure and it cannot be retained. On the contrary, secondary memory is non-volatile in nature which means information is stored permanently with no data loss in case of power failure. Data is intact unless the user erases it intentionally.

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### 5. Devices for of Primary and Secondary Memory

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Primary memory can also be referred to as RAM, short for Random Access Memory, because of the random selection عشوائي of memory addresses. RAM holds data in a uniform manner and it can be lost when power fails. Secondary memory refers to external خارجي storage devices such as hard disk, optical disk, compact disk, flash drives, magnetic



tapes, etc. They are high-storage devices with substantial storage capacities, in the range of gigabytes to terabytes.

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## **6. Speed of Primary and Secondary Memory**

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In primary memory, applications and instructions are stored in the main memory which makes them relatively faster to access via data bus. Processor is able to retrieve data faster than it does with secondary memory, which acts more like a backup memory to store data in external storage devices.

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### **Primary Memory vs. Secondary Memory: Comparison Chart**

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## PRIMARY MEMORY VERSUS SECONDARY MEMORY

It is the main memory where the data and information are stored temporarily.	It refers to the external memory where data is stored permanently.
Data is directly accessed by the processing unit.	Data cannot be accessed directly by the processor.
It's a volatile memory meaning data cannot be retained in case of power failure.	It's a non-volatile memory so data can be retained even after power failure.
Memory is stored in semiconductor chips which are relatively expensive.	Memory is stored in external storage devices such as hard disks, flash drives, etc.
It can be categorized into cache memory and random access memory (RAM).	They are permanent storage devices such as CD, DVD, HDD, floppy disk, etc.
It's relatively faster than secondary memory because of its volatile nature.	They are usually slower than primary memory. It's like a backup memory.
It holds data or information that is currently being used by the processing unit.	It stores substantial amount of data and information, ranging from gigabytes to terabytes.

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## Summary of Primary Vs. Secondary Memory

Computer memory is categorized into primary memory and secondary memory, along with cache memory. Primary memory is the main memory or internal memory of the computer which is used to store frequently used data and instructions. It provides fast

memory access because of its volatile nature which makes it easy to retrieve information directly from the main memory by the processing unit. Secondary memory, on the other hand, refers to external storage devices which are used to store substantial amount of data in hard drives, flash drives, CDs, DVDs, floppy disks, magnetic tapes, etc. Unlike primary memory, secondary memory is not directly accessed by the processor.