

**PROGRAMMING**  
**ADVICES** LEARN THE RIGHT WAY

26+ Years of Experience

**Mohammed Abu-Hadhoud**  
MBA, PMOC, PMP®, PRINCE2®, CIL, ITIL, MCP®, MCSD

لا تنسى الاشتراك في قناتنا على اليوتيوب ومشاركة القناة مع اصدقائك  
لتعم الفائدة للجميع وانقاذ الاف الناس من التشتت جزاكم الله خيرا  
لا تنسونا من دعائكم وادعو لوالدي بالرحمة  
[www.ProgrammingAdvices.com](http://www.ProgrammingAdvices.com)



## مهم جداً

هذا الملف للمراجعة السريعة واخذ الملاحظات عليه فقط ،لانه يحتوي على اقل من 20% مما يتم شرحه في الفيديوهات الاستعجال والاعتماد عليه فقط سوف يجعلك تخسر كميه معلومات وخبرات كثيره

**يجب عليك مشاهدة فيديو الدرس كاملا**

لاتنسى عمل لايك ومشاركة القناة لتعم الفائدة للجميع  
لا تنسونا من دعائكم

**ProgrammingAdvices.com**

Mohammed Abu-Hadhoud







# اساسيات مهمه لكل مبرمج

## السرعات ووحدات القياس في الكمبيوتر



**Mohammed Abu-Hadhoud**

26+ Years of Experience

MBA, PMOC, PgMP®, PMP®, PMI-RMP®, CM, ITILF, MCPD, MCSD

**P** | **PROGRAMMING**  
**ADVICES** | LEARN THE  
RIGHT WAY



# Computer Foundations Memory Units

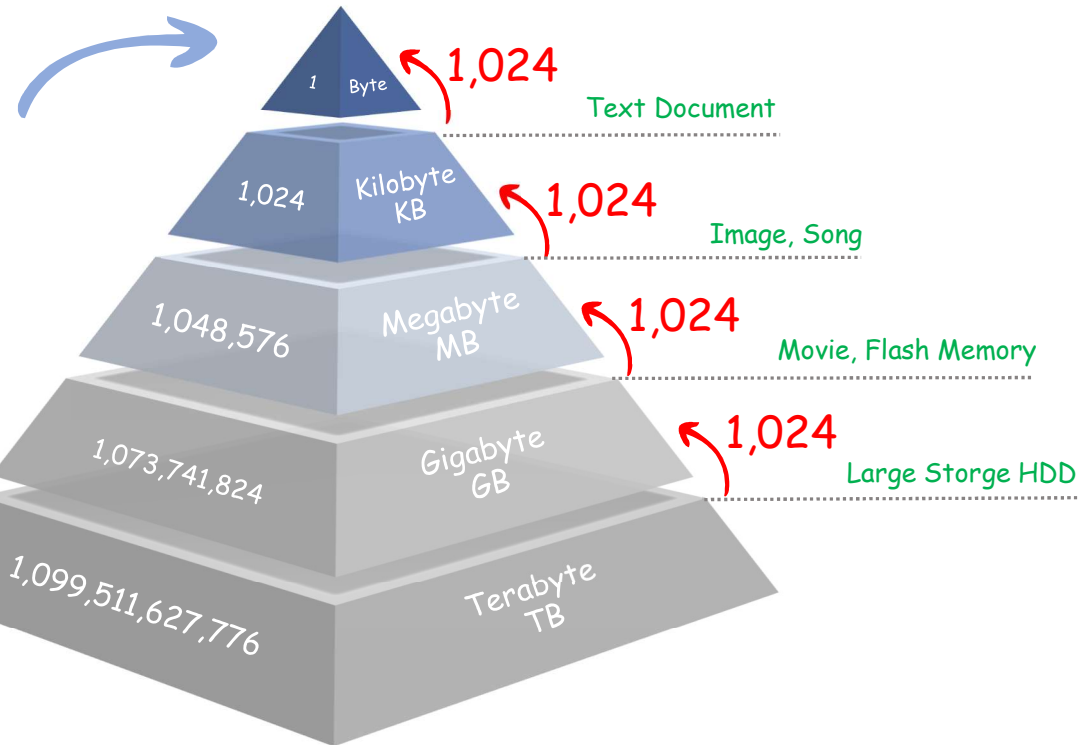
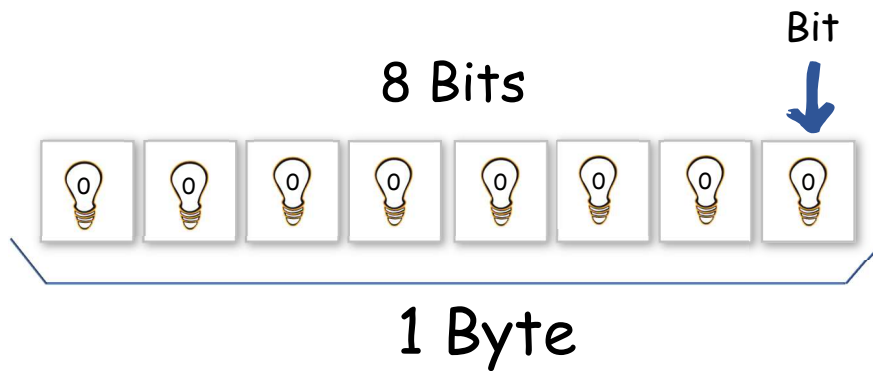
Mohammed Abu-Hadhoud

26+ Years of Experience

MBA, PMOC, PgMP®, PMP®, PMI-RMP®, CM, ITILF, MCPD, MCSd

 **PROGRAMMING**  
**ADVICES** LEARN THE RIGHT WAY

# Memory Units...



There are more:

- Petabyte (PB)  $10^{15}$  (Facebook Servers 10+ PBs)
- Exabyte (EB)  $10^{18}$  (amount of data transfer over the internet)
- Zettabyte (ZB)  $10^{21}$  (whole data in the world just a few ZB)
- Yottabyte (YB)  $10^{24}$  (Huge, No practical use)



A hand is holding a CPU chip. A dark rectangular overlay with a dotted border is positioned over the right side of the chip. The overlay contains the text 'Computer Foundations' in white and 'CPU Access to Memory' in yellow. The CPU chip itself has some text on it, including 'INTEL CORE', 'I9-9900K', 'SRELS 3.60GHZ', and 'L903F183'.

Computer Foundations

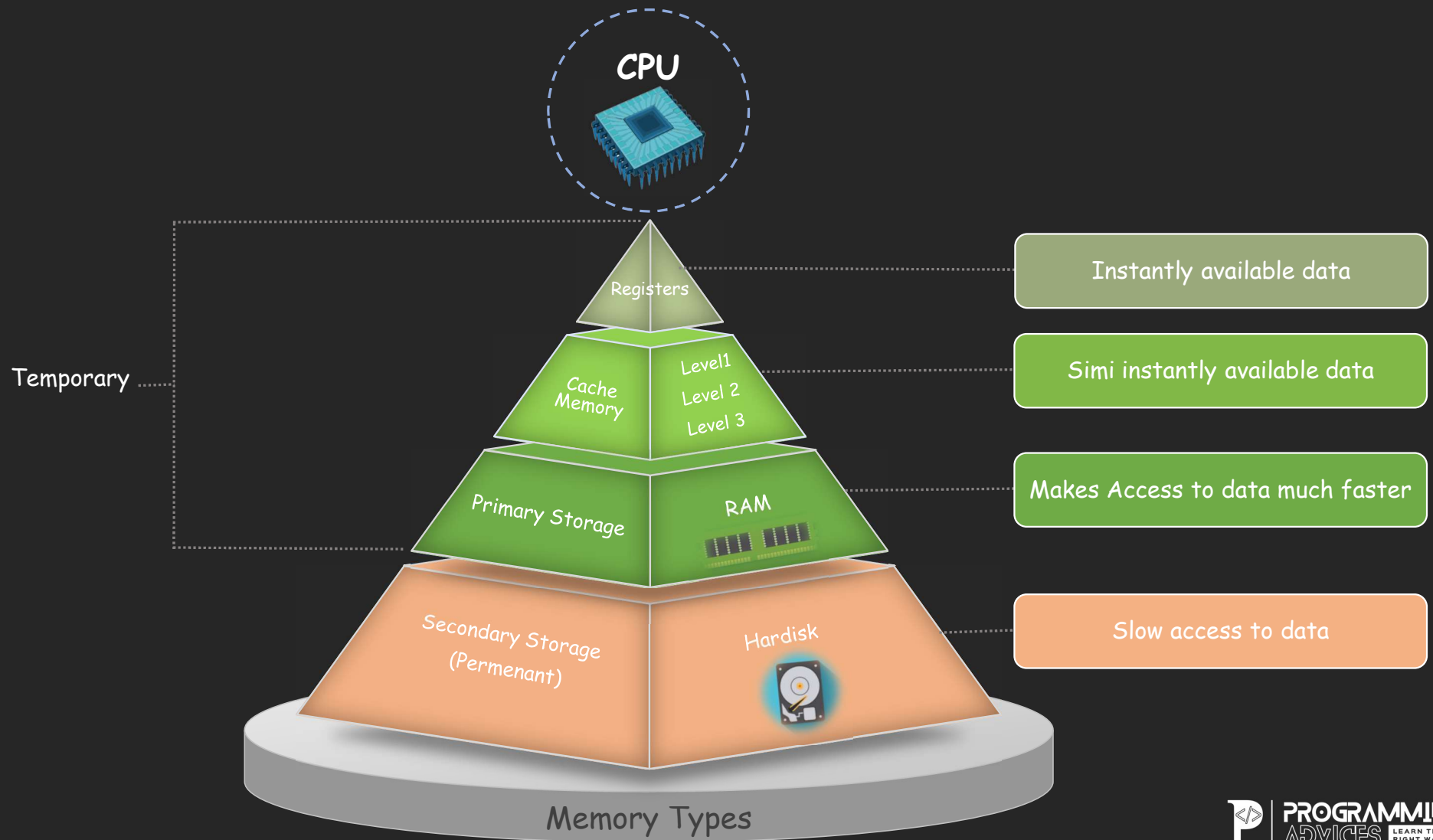
# CPU Access to Memory

Mohammed Abu-Hadhoud

26+ Years of Experience

MBA, PMOC, PgMP®, PMP®, PMI-RMP®, CM, ITILF, MCPD, MCSd

 **PROGRAMMING**  
ADVICES LEARN THE RIGHT WAY





Computer Foundations

# CPU Speed

Mohammed Abu-Hadhoud

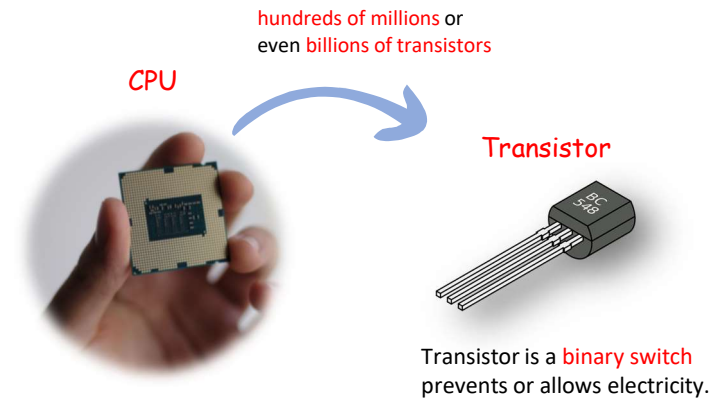
26+ Years of Experience

MBA, PMOC, PgMP®, PMP®, PMI-RMP®, CM, ITILF, MCPD, MCSd

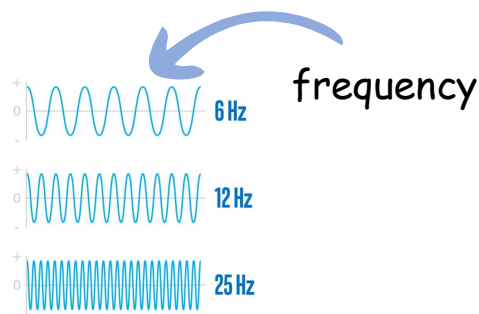
 **PROGRAMMING**  
ADVISES LEARN THE RIGHT WAY



# CPU Speed



- Higher clock speed means a faster CPU (within the same generation)
- Clock speed (also "clock rate" or "frequency") is one of the most significant.
- A CPU with a clock speed of 3.2 GHz executes 3.2 billion cycles per second.



Hertz HZ → Cycles per second  
(Clock Cycle)

During each cycle, billions of transistors within the processor open and close.

## Device specifications

Device name	MSaqer-Mac
Processor	Intel(R) Core(TM) i9-9880H CPU @ 2.30GHz 2.30 GHz
Installed RAM	16.0 GB (15.9 GB usable)
Device ID	DA94F72E-CA16-4D3D-9AFE-78DA0D409BA6
Product ID	00329-10286-19105-AA841
System type	64-bit operating system, x64-based processor
Pen and touch	No pen or touch input is available for this display

A hand is holding a black Intel i9-9900K processor chip. The chip has a silver heat spreader in the center. The text on the chip includes 'INTEL', 'i9', '9900K', 'SRELS 3.60GHZ', and 'L903F183'.

Computer Foundations

# 32-Bit vs 64-Bit

Mohammed Abu-Hadhoud

26+ Years of Experience

MBA, PMOC, PgMP®, PMP®, PMI-RMP®, CM, ITILF, MCPD, MCSd

 **PROGRAMMING**  
ADVICES LEARN THE RIGHT WAY



32-Bit

VS

64-Bit

Less processing power, older, slower, and less secure

More processing power, newer, faster, and more secure

$2^{32}$   
(or 4,294,967,296) bytes

$2^{64}$   
(or 18,446,744,073,709,551,616) bytes

Can allocate only 4GB of memory (RAM)

Can allocate much more RAM

Referred to as x86 or x86-32

Referred to as x64 or x86-64

Can only run a 32-bit operating system and 32-bit software

Can run both 64-bit and 32-bit operating systems and software

Differences

**Note:** if you have installed 32-bit operating system on a 64-bit computer, then it can run 32-bit software only.

## Device specifications

Device name	MSaqer-Mac
Processor	Intel(R) Core(TM) i9-9880H CPU @ 2.30GHz 2.30 GHz
Installed RAM	16.0 GB (15.9 GB usable)
Device ID	DA94F72E-CA16-4D3D-9AFE-78DA0D409BA6
Product ID	00329-10286-19105-AA841
System type	64-bit operating system, x64-based processor
Pen and touch	No pen or touch input is available for this display