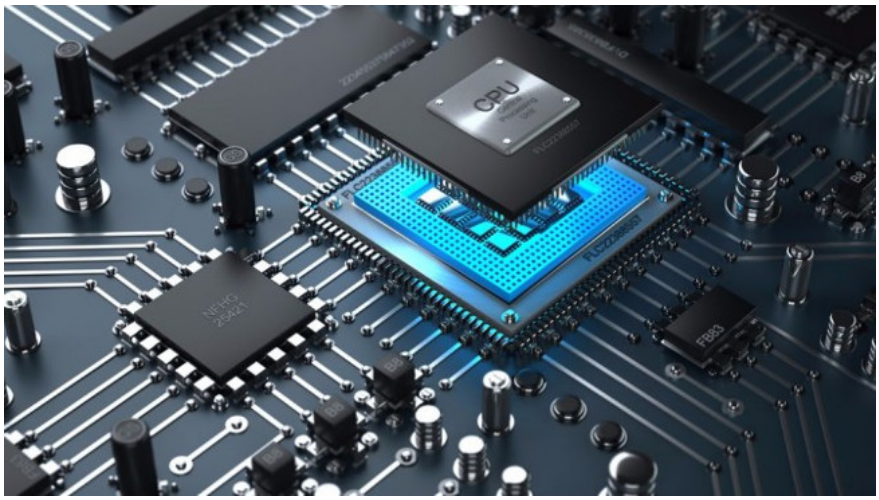
How to choose laptop CPU that meets the needs (part 1)

CPU is known as the laptop's brain, this is the control center of the computer, so how to choose a suitable CPU for the computer

Referring to the **CPU** , we all know it is the brain, which is the central controller of a computer. Also because of the important nature, choosing the CPU is enough to " *assume* " all the tasks on the computer, requiring users to master the basics.

With the article below hope readers will have more personal experience for themselves to be able to choose the most suitable CPU for laptops and their needs.



As mentioned above, the CPU (processor chip) is **the most important central component of a computer** , not only dealing with common tasks like listening to music, watching movies and images. With a CPU that's strong enough, you can even use high-end graphics and high-end gaming software. Of course, you must know the clock and CPU to get the best decision.

Most laptops today are equipped with **Intel chips** and some low-cost laptops using **AMD chips** . However, each chip line has a lot of different versions, making it difficult to compare and evaluate the performance of each chip.

So what kind of laptop CPU fits your needs?

Below the magazine LaptopMag has charted the classification of CPU lines according to the purpose of each user. In particular, workstations and gaming always require high-performance CPUs. Meanwhile, low-cost, low-cost laptops will often use **Celeron** , **Pentium** and even **Atom** for ultra-cheap.

Mục đích	CPU đề nghị	SKU mẫu	Thời lượng pin
Máy trạm/Chơi game	Core i5 / i7 HQ Series	Core i7-6820HQ, Core i5-5440HQ	3-8 tiếng
Hiệu suất thông dụng (có thể tăng tốc)	Core i7 U Series	Core i7-7500U	5 tới 17 tiếng
Hiệu suất thông dụng	Core i5 U Series	Core i5-7200U, Core i5-6200U, Core i5-6300U	5 tới 17 tiếng
Siêu mỏng (Hiệu suất bình thường)	Core m / Core i5 / i7 Y Series	Core m3, Core i5-7Y54	5 tới 9 tiếng
Laptop giá rẻ, hiệu suất thấp	Celeron, Pentium	Celeron N3050, Pentium N4200	4 tới 6 tiếng
Laptop siêu rẻ, hiệu suất thấp nhất	Atom Series	Atom Z3735F, Atom x3, Atom x5	7 tới 12 tiếng

However, it is not easy to explain exactly the **type of CPU** and **CPU life** you want to match your laptop. Here's how you can better understand how to read a CPU parameter.

Intel Core i chips currently have 7 generations. The first generation code-named **Nehalem** , the second generation is **Sandy Bridge** , the third generation is **Ivy Bridge** , the fourth generation **Haswell** , the fifth generation **Broadwell** , the sixth generation is **Skylake** and the latest seventh generation. is **Kaby Lake** .

The general name structure of Intel Core i chip is basically :

Processor name = Brand (Intel Core) + **Brand modifier** (i7) + Generation (7) + **SKU** (500) + **Product line** (U)

1. **Brand name** : usually Intel Core but can be labeled Xeon, Celeron, Pentium or Atom
2. **Brand modifier** : Most are Core i3, i5 or i7 (the higher the stronger)
3. **Generation** : Intel's CPU generation identifies 7 current CPU versions (the higher the better)
4. **SKU** : Product identification number (usually three numbers)
5. **Product line** : There are many different abbreviations about product lines including U, Y, HQ or HK. This is the product line prefix (The key factor to know which CPU line suits the user's needs).

What are the differences between Core i3, Core i5 and Core i7? What factors should be taken into account when choosing a CPU based on Intel Core i?

Most Intel CPUs that you see on laptops cost more than $ 400 become. These numbers also correspond to translational value, speed and performance. That means that Core i3 is the lowest version and Core i7 is the highest version. However, most users usually need only Core i5 version to meet the needs of learning, entertainment, work or even playing games, making graphics intensive.

1. **Core i3** : usually a dual-core CPU, 64-bit architecture, x86 instruction set for cheap laptops and desktops. Do not integrate Turbo Boost.
2. **Core i5** : is a dual-core or quad-core CPU, 64-bit architecture, x86 instruction set for mid-range laptops and desktops. Has Turbo Boost integration depending on the version
3. **Core i7** : is quad-core CPU or up to 8 cores, 64-bit architecture, x86 instruction set for high-end laptops and desktops. Features Turbo Boost integration.

1. **Cores** : Number of processing cores of a CPU. Usually the CPUs of many laptops currently have dual cores, but on some high-end laptops, the number of cores can be four (quad core) to meet the need to handle multi-tasking tasks.
2. **Hyper-Threading** : **Hyper-threading** technology has an important effect in creating virtual processing cores, allowing the creation of two threads per core, improving processing efficiency with heavy software.
3. **Clock Speed** : CPU processing speed. This parameter is calculated in GHz and is the number of clock cycles (calculations) that the CPU can process per second. The higher the parameter, the better, but not the main factor determining the overall processing speed of the CPU.
4. **Turbo Boost** : A technology to improve CPU processing performance to quickly complete a certain task by adjusting the clock of each individual core to match the processing needs. Also on many models, Clock

Speed ??is said to be fixed but it can be pushed higher thanks to Turbo Boost technology.

Usually on Intel Core i5 and Core i7 series will be equipped with Turbo Boost, while Core i3 does not support .

1. **Cache** : The CPU cache, which is the middle of the CPU and RAM, is a temporary storage of commands that the CPU needs to process. The cache is also a place to store frequently used information, so the use of cache reduces the time for repeat operations. The CPU cache currently falls between 1 and 4MB. The bigger the cache, the faster the processing speed, reducing waiting time.
2. **TDP** : is the amount of power consumed and is calculated by the number of Watt (W) that the CPU uses. The larger the number of watts, the better the performance, but the higher the temperature and the higher the power consumption.

CPU generation has an impact on your choice of CPU?

On average, from 12-18 months, Intel often launches a new generation of CPUs, improved in processor speed and power savings, . Unfortunately, not all CPU product lines are running at all times. catch up. There are currently only a few **Intel U-series** and **Y-series** running the 7th generation (Kaby Lake), while some high-performance business CPUs are only in the 6th generation (Skylake).

Nền tảng CPU chính của Intel

Thế hệ	Tên mã	Năm phát hành	Kích thước
7	Kaby Lake	2016	14nm
6	Skylake	2015	14nm
5	Broadwell	2014	14nm

Every 2 or 3 generations of CPUs, Intel will begin the process of improving the CPU by shrinking the transistors to help increase processing efficiency but still maintain a constant power consumption. Intel is applying CPU development strategy according to the " **tick-tock** " cycle about 2 years.

Accordingly, the "tick" phase will be applied to upgrade the new CPU creation process and the "tock" phase will be used to upgrade the processing architecture. However, when the 10 nm and 7 nm processes are close, especially when the 7nm process is expected to be available in 2018 and Moore's law gradually loses its correctness, perhaps the choice of generation-based CPUs CPUs may face big problems with general users.