

Does your computer need Intel Core i3, i5 or i7?

Intel has a rather confusing way of naming microprocessors and the most frequently asked questions are: What is the difference between the i3, i5 or i7 processors? Which one should I buy for a computer?

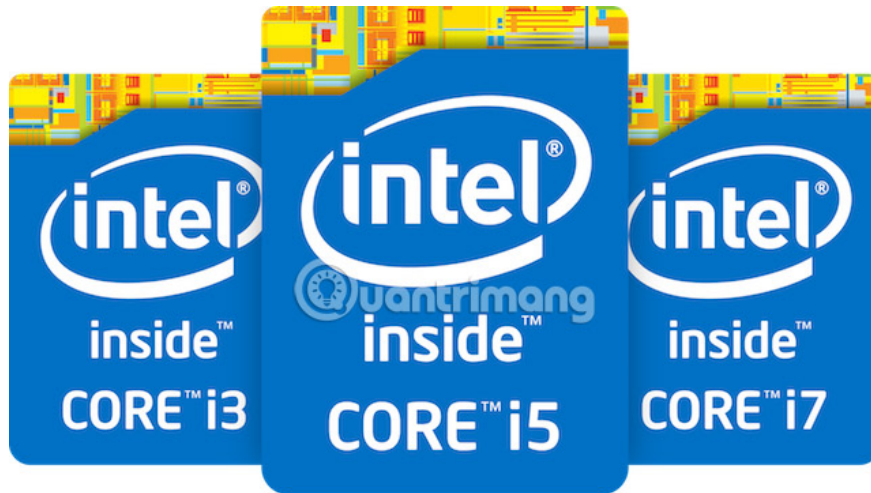
Microprocessors are the brain of a computer, but to know the difference between processors requires a lot of effort from the user. Intel has a rather confusing way of naming microprocessors and the most frequently asked questions are: What is the difference between the i3, i5 or i7 processors? Which one should I buy for a computer?

It's time to clarify that. Today's article will not cover other Intel processors like the new Pentium or Core M series for laptops. Each Intel processor has its own advantages, but the Core series is the most popular and most confusing, so the article will focus on that.

Does your computer need Intel Core i3, i5 or i7?

1. The difference between Core i7, Core i5 and Core i3
2. What does Intel's model number U, Q, H, and K mean?
3. Hyper-Threading technology on Intel Core i7, i5 and i3
4. Turbo Boost technology on Intel Core i7, i5 and i3
5. Intel Core i7, i5 and i3 cache sizes
6. Intel HD graphics card, UHD, Iris, Iris Pro or Plus
7. Choose between Intel Core i3, i5 and i7

The difference between Core i7, Core i5 and Core i3



Intel Core i7 is better than Core i5, and Core i5 is better than Core i3. The problem is that you know what to expect in each of these categories. Let's find out a little deeper.

First, i7 doesn't mean 7 core processor! This is just a name to indicate relative performance.

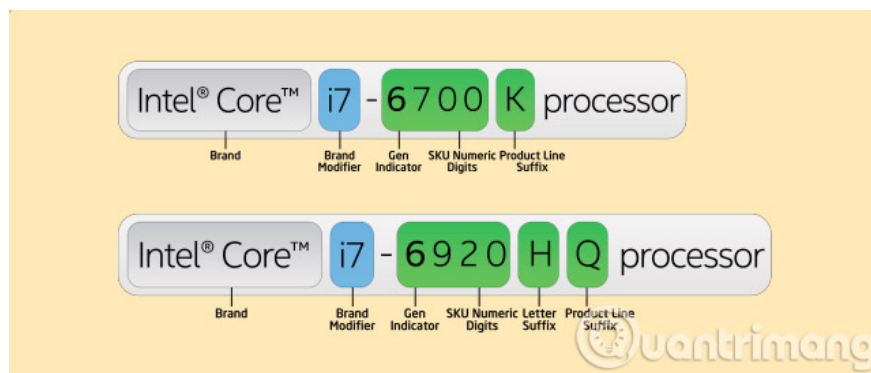
Typically, the Core i3 line only has a dual-core processor, while the Core i5 and Core i7 series have both dual-core and quad-core processors. Quad core is usually better than dual core, but don't worry about that.

Intel released a series of chipsets (chipsets are a group of integrated circuits designed to work together and go together as a single product), called generation. The current version is the 8th generation line named Kaby Lake Refresh. Each generation has its own line of Core i3, Core i5 and Core i7 processors.

You can detect which generation belongs to the generation based on the first digit in the four-digit model name. For example, Intel Core i3-8250 is the 8th generation.

Tip: Here's a helpful rule. The remaining three digits are Intel's assessment of how microprocessors are compared to other processors in the line. For example, Intel Core i3-8145U outperforms Core i3-8109U because 145 is larger than 109.

What does Intel's model number U, Q, H, and K mean?



As you can see, the model numbers will usually be followed by one or a combination of the following letters: U, Y, T, Q, H, G and K. Here are their meanings:

1. **U : Ultra Low Power** . The U is only for notebook processors. They use less power and are better for batteries.
2. **Y : Low Power (Low power level)**. Often found on older generation laptops and mobile processors.
3. **T : Power Optimized**. Processor optimizes energy for desktops.
4. **Q : Quad-Core** (quad core). Q is for microprocessors with four physical cores.
5. **H : High-Performance Graphics (High-performance Graphics)**. The chipset has one of Intel's best graphics cards in it.
6. **G : Includes Discrete Graphics** (Including **discrete graphics** cards). Often found on laptops. This means there is a dedicated GPU with the processor.
7. **K : Unlocked** . This means you can overclock the processor above its rating.

Understanding these letters and the numbering system above will help you know what a microprocessor provides, just by looking at the model number, without having to read the actual specifications. Of course, before making a purchase, you should check the details at ark.intel.com.

You can find the meaning of other suffixes according to Intel's instructions on the number of processors.

Hyper-Threading technology on Intel Core i7, i5 and i3



Hyper-Threading (Intel Hyper-Threading Technology) is the deployment of multiple concurrent, proprietary threads from Intel, used to improve the parallelism of calculations, implemented on x86 processors.

The physical cores largely determine the speed of a microprocessor. But with the way modern CPUs work, you can speed up with virtual cores, enabled through a system called Hyper-Threading Technology - Hyper-Threading Technology.

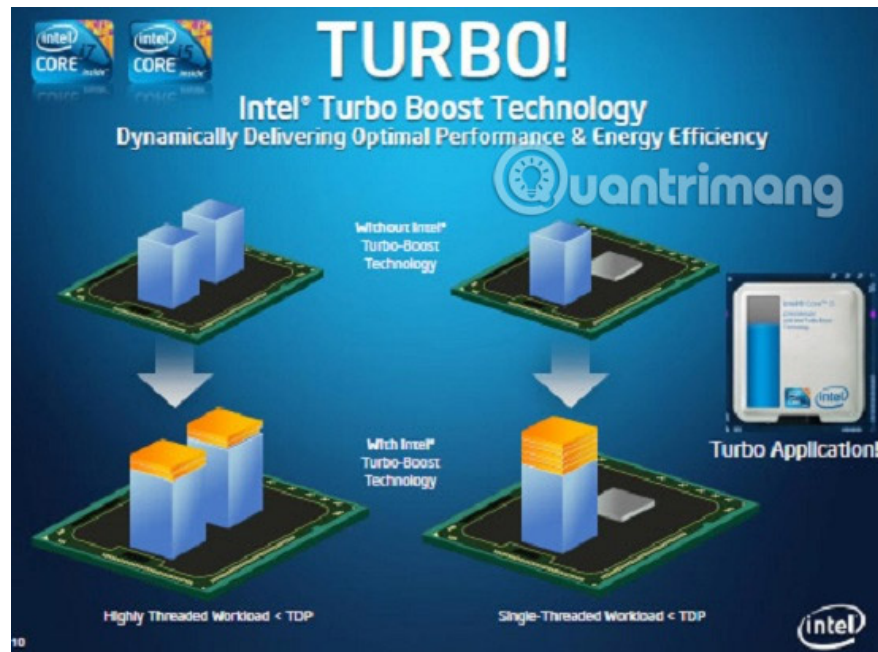
Under normal circumstances, hyperthreading allows a physical core to act as two virtual cores, so it can perform multiple tasks at once without activating a second physical core (ie love Demand additional power from the system).

If both processors operate and use hyperthreading, those four virtual cores will compute faster. However, note that physical cores are faster than virtual cores. A quad-core CPU will perform much better than a dual-core CPU, in terms of hyper-threading!

The Intel Core i3 and Core i7 series support hyperthreading. The Intel Core i5 series does not support this.

However, recent reports show that Intel can reduce the ability of hyper-threading on all its processors, except for the fastest Core i9 line.

Turbo Boost technology on Intel Core i7, i5 and i3



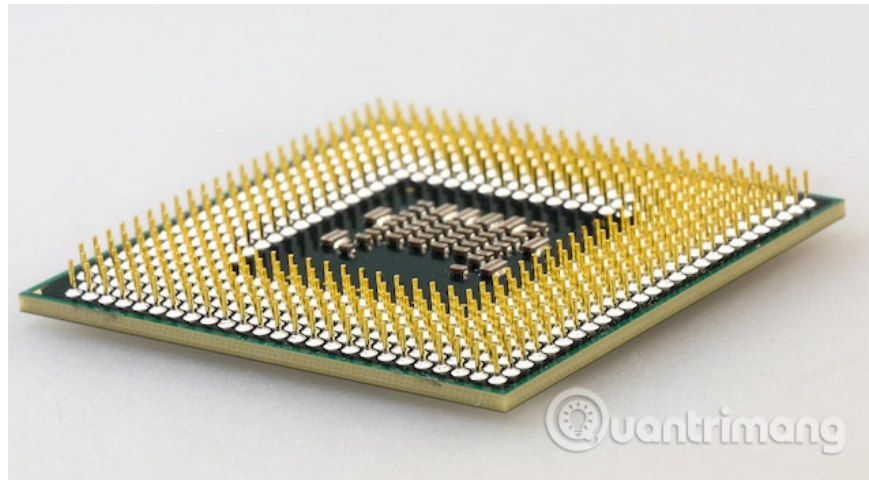
Turbo Boost is a technology that enhances performance, helps the system to operate faster and extends battery life.

Intel Core i3 series does not support Turbo Boost. Core i5 and Core i7 series use Turbo Boost to speed up tasks.

Turbo Boost is Intel's proprietary technology to intelligently increase processor clock speed, if the application requires it. For example, if you are playing a game and your system requires some extra horsepower, Turbo Boost will accelerate to compensate.

Turbo Boost is useful for those who run resource-intensive software like video editors or video games, but it doesn't have much impact if you're just browsing the web and using Microsoft Office.

Intel Core i7, i5 and i3 cache sizes



In addition to Hyper-Threading and Turbo Boost, the biggest difference in the Core product line is Cache Size. Cache is the processor's own memory and works like its own RAM. It is one of the lesser known specs, capable of slowing down your computer.

Just like with RAM, the larger the cache size, the better. So, if the processor does a repetitive job, it will keep that task in its cache. If a processor can store more tasks in its own memory, it can make tasks faster if they reappear.

Core i3 series usually has up to 3MB of cache memory. Core i5 series has from 3MB to 6MB of cache memory. Core i7 series has from 4MB to 8MB of cache memory.

Intel HD graphics card, UHD, Iris, Iris Pro or Plus



Since the graphics card is integrated on the microprocessor chip, it becomes an important decision point in purchasing CPUs. But like everything else, Intel has made the symbol system a little confusing.

There are currently three levels of simple graphics card: Intel HD, Intel Iris and Intel Iris Pro or Iris Plus. You will see a model name like Intel HD 520 or Intel Iris Pro 580 . and from there, you start to get confused.

The Intel HD 520 is a basic graphics chipset. Intel Iris 550 is better than Intel HD 520, but also basic. Intel HD 530 is a better and better performance graphics card than Intel Iris 550. However, Intel Iris Pro 580 (also a high performance graphics card) but better than Intel HD 530.

Is there any way to explain these things? The answer is no. Instead, rely on Intel's naming system. If the processor model ends in H, you know it's a high-performance model. If it ends in G, that means there's a dedicated GPU, not one of Intel's chips.

Choose between Intel Core i3, i5 and i7

Processor	Physical Cores	Cache Size	Hyper-Threading	Turbo Boost	Graphics	Price
Core i3	2	3MB	Yes	No	Low	Low
Core i5	2-4	3MB-6MB	No	Yes	Mid-range	Mid-range
Core i7	2-4	4MB-8MB	Yes	Yes	Best	Expensive

In general, the following is the object for which each type of processor is most suitable:

1. **Intel Core i3** : Basic user. This is the most economical, suitable choice for browsing the web, using Microsoft Office, making video calls and social networks. Not for gamers or professionals.
2. **Intel Core i5** : Average user. People who want a balance between performance and price. Good for gaming if you buy a G processor or Q processor with a dedicated graphics processor.
3. **Intel Core i7** : High-end users. You can perform multiple tasks with several windows open at the same time. You can run applications that require a lot of horsepower and don't have to spend time waiting for anything to load.

This article provides basic guidance for anyone who wants to buy a new Intel processor but is confused between Core i3, i5 and i7. But even after understanding all this, you still need to choose between two different generations of processors because they have the same price.

When you compare, the best tip is to visit **cpuboss.com**, where you can compare two processors and get detailed analysis and ratings. If you don't understand the terminology, just rely on basic ratings and advice. Even if you understand the terminology, CPU Boss also has all the details you need.

Note: Most people do not need Intel Core i9

Intel also has a high-end processor called Intel Core i9. Usually, they have more cores (10 to 18 cores on the desktop), leading to higher speeds. But for most people, the extra performance is not really worthwhile.

Core i9 is only useful if you are a hardcore gamer for the purpose of streaming or as a video editor to perform multiple tasks at the same time. For other users, Intel Core i7 and maybe even Intel Core i5 are good enough.

Wish you choose the product you like!

See more:

1. Choose a Core 2 Duo or Core i-series laptop
2. How to choose laptop CPU in accordance with needs
3. Decode the specifications on the laptop

You finished reading the article "**Does your computer need Intel Core i3, i5 or i7?**" edited by the [TipsMake](#) team. We hope this article has provided you with many useful tech tips and tricks. You can search for similar articles on tips and guides. Thank you for reading and for following us regularly.
