Learn about TDP in CPU and why you need to care about it

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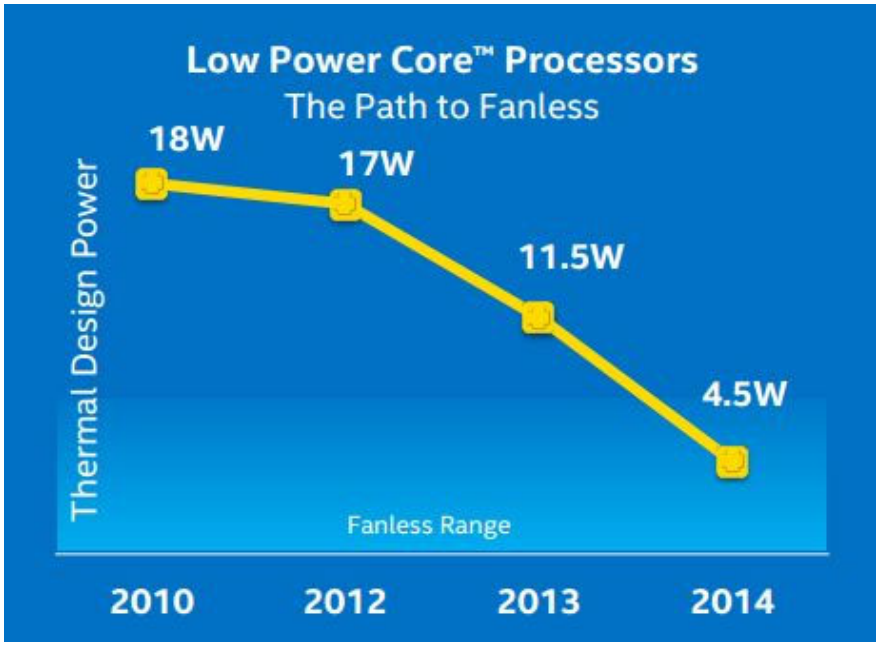
In the process of upgrading or learning about the hardware components made up of a computer, there must have been many times when you saw the term TDP. So what exactly is TDP and why do you need to care about this value? All will be answered in this article. For now, let's come to the problem soon.

What is TDP?



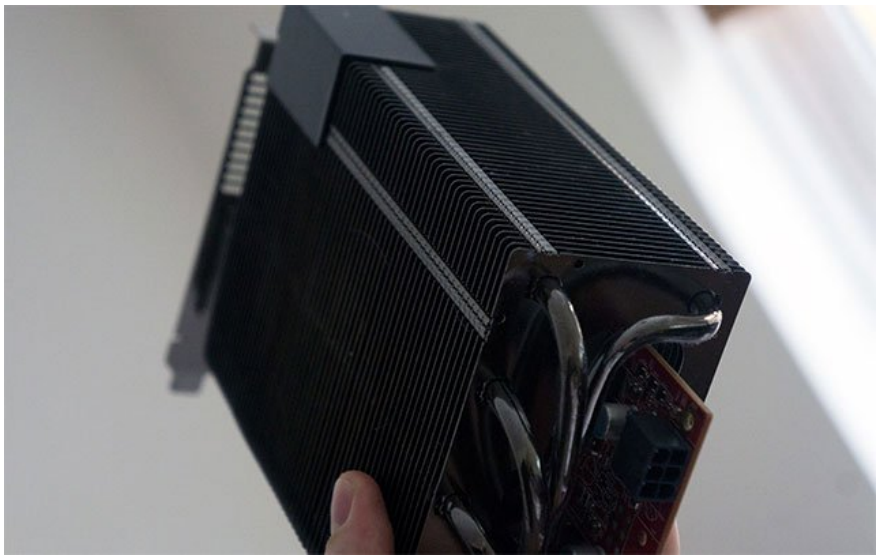
TDP (thermal design power) is the maximum heat output of a processor chip, present on every CPU or GPU, and is used to measure the amount of heat the processor will emit when loading tasks on the system. system. For example, if the CPU you are using has a TDP of 90W, it indicates that this CPU is expected to generate a maximum thermal value of about 90W when operating. The value of TDP can be confusing for those who do not have much expertise when purchasing new hardware devices. However, you simply need to understand that the higher the number of TDPs, the more power the CPU will consume and the more efficient it needs to be. Therefore, this is an especially important indicator for laptops. For example, the Core i9-8950HK chip with Intel's TDP of 45W is definitely not usable in a light-weight ultrabook, which is only designed for microprocessors with a TDP of about 15W.

1. Instructions for using CPU-Z, read the CPU-Z parameters provided

Go back to the original example of a CPU with a TDP of 90W. That doesn't mean that the processor will need 90W of power from the supply, although the actual thermal design capacity is also measured in watts. Instead of raising the required component values ??as raw input standards, manufacturers use TDP as a nominal value for the related cooling systems. Also, in normal use, it is rarely possible to reach the maximum TDP value, unless you use extremely intensive applications and processes.

In short, the higher the TDP, the more power the processor will consume, while also requiring more cooling, possibly through passive technologies, traditional fan-cooled systems. or liquid heat sink.

TDP and power consumption

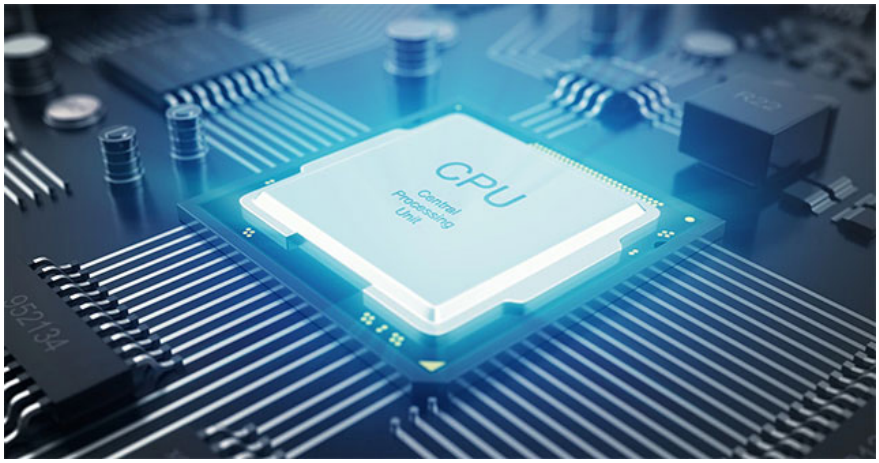


TDP is related to the amount of power consumed, but in fact, this parameter is not quite equivalent or can indicate exactly how much power will be consumed by the CPU, but of course you can still use the TDP value as an estimate for the amount of power consumed. For example, Intel's TDP for its chips is a reference power consumption for OEM engineers such as Asus, Dell . to design a suitable thermal solution for the product. In general, low-TDP CPUs consume less power.

Therefore, although the value of TDP may not accurately reflect the level of power consumed by the CPU in a system, it provides a solid basis for designing a suitable cooling system, as well. As a rough idea of ??how much power (PSU) is needed, it is reasonable. For safety, many experts often recommend using PSUs up to 500W for PC systems with a single GPU.

5 websites compare the speed and CPU performance from the most accurate Benchmark point

summary



Basically, you simply need to understand that TDP is a parameter that helps determine the performance and energy use level of a certain component. Take the example of a computer processor, a CPU model with a higher TDP will often provide powerful performance, but consume more power from the PSU. However, again, TDP is not a direct measure of how much energy a component will consume, but this is an important indicator that helps us identify relevant information.

1. Decode the specifications on the laptop

Note that in the process of upgrading computer hardware components such as CPU or GPU, before upgrading to a more powerful CPU or GPU with higher TDP, you must make sure that the current cooling system is sufficient to meet your requirements. bridge to avoid unfortunate incidents during use.

Hope the information in the post useful to you!

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