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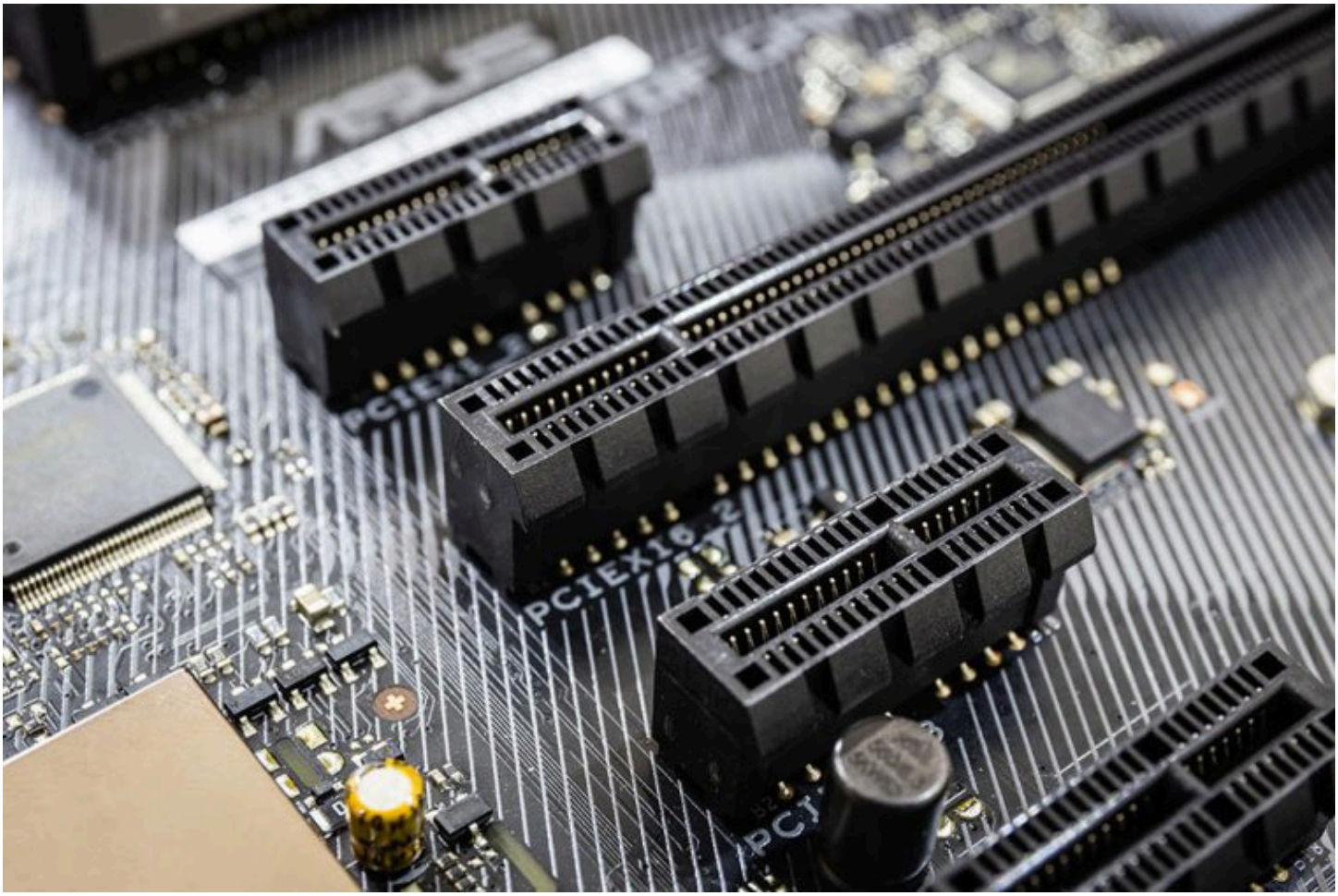
HARDWARE PC BUILDING

PCI-e Frequency: Everything You Need to Know



Wondering what PCI (or PCI-e) frequency is, how it affects your PC, and how to optimally set it? We can help!

The PCI-e frequency is the speed at which the PCI-e slots can run their respective devices off of. For example, using a low-quality PCI-e slot compared to a high quality one will cause differing rates of performance for the component plugged into the slot.

This is especially true when it comes to graphics cards, SSD drives and other equipment that has a direct effect on your computer's performance.

Generally, a Motherboard's quality will reflect the quality of the PCI-e slots that you get in addition to how many slots you have available. With some Motherboards, you can only put in a certain number of devices. Naturally, that will cause the performance to be lower than someone with far more slots available.

The frequency is affected by the quality of the slot and not necessarily the equipment plugged into it.

This quick guide will tell you everything you need to know about how PCI-e frequency works, how to change it, and whether or not it's worth it to adjust it at all.

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Changing PCI-e Frequency

PCI-e frequency can be changed via an option in your computer's BIOS menu which is usually accessible by repeatedly hitting the *Delete Key* when the device is turning on. Here, you will see an option to adjust PCI-e frequency with little information about what that actually means.

In the BIOS, you will see your PCI frequency measurement number as 100. The reason for this, is that the PCI-e bus is meant to run at 100 MHz times whatever the slot is rated. Because of this, there can be significant risk involved with altering the frequency.

The risks involved are numerous, not limited to displays failing to render or, depending on what device you have installed in the slot, completely ruining a component. The risks are greater than tinkering with something like DRAM frequency.

Overclocking PCI-e Frequency

Though it may be surprising, it is possible (however ill-advised) to overclock PCI-e frequency.

Through overclocking, you can amplify the performance of several parts of you PC to perform at a higher level than they were previously capable of. There are various parts of a PC that you can overclock as well. These include graphics cards, CPUs and voltages.

As detailed in the prior sections, you can find the menu in your BIOS and tweaking it incrementally and then running a benchmark is the best way to go about testing this.

You need to be extremely careful here as you aren't just running an Overclock on one individual system here but rather you are Overclocking a part of the Motherboard itself. The Motherboard is what pretty much every part of your PC hooks up to, so if you accidentally damage that, this could mean the end of your CPU, GPU, sound card.

If that sounds like its adding up to a lot of money, you'd be right in thinking that way.

PCI-e results can vary wildly. Some users will complain about it doing little-to-nothing, while others claim it has changed their gaming experience completely. With so many conflicting opinions, the best answer is usually to simply to try it for yourself and see what happens.

Regardless, in our opinion, you're better off leaving it be unless you're an expert.

How to Check PCI-e Frequency

One method is detailed above on how to check your PCI-e frequency, as it is easily accessible through your BIOS when starting up your PC.

Another method though is to download GPU-Z. This is a free utility which offers a lightweight program that allows you to check Overclock speeds, has a GPU load

test to verify PCI-e lane configuration, creates backups of your graphics card and BIOS configurations and also requires no installation.

It supports cards from NVIDIA, AMD, ATI and Intel graphics cards as well. Using this tool, you can get all the information needed on what your PCI-e frequency is as well as run a variety of tests to benchmark your system with the current numbers.

You cannot change your PCI-e frequency here however, so this is only to check on the changes that you have previously made in the BIOS. While it can't do that, the information it can give you otherwise is valuable to have as well and again, it's free, so there is no risk in trying it out.

What is an Optimal PCI-e Frequency?

We'd advise that you don't bother touching the PCI-e frequency and instead turn to overclocking your graphics card or GPU instead, as the benefits are far more noticeable and easy to tinker with without issue.

If you absolutely must change the PCI-e frequency out of morbid curiosity or the unstoppable urge to put more stress on your computer, then the way to do it is in **tiny** increments.

The general range that has been reported for years as the safe amount to change the frequency from is 100-130. At any given time though, **do not raise the frequency by more than 5**.

The reason for these tiny increments is that if things go wrong, you won't necessarily know which number caused the issue and you could end up troubleshooting for a while just doing this.

Remember, if you go too high without testing, everything from your screen to your GPU to your WiFi might completely stop working.

So tread carefully!

What are The Benefits of Increasing PCI-e Frequency?

It can't be overstated that the benefits of increasing the PCI-e frequency are very minimal at best. You might see an increase in frames per second, you might be able to overclock further than you had before on your graphics card, or you might cause a cataclysmic destruction of your system and turn it into a brick for being too hasty with alterations.

Final Recommendations

As PC users (gamers, especially), we are always going to want to better our systems in some way. Through overclocking, we can figure out ways to amplify our equipment without spending additional money. Traditionally, that has been the best way to go about changing things on your PC.

With PCI-e frequency though, you are dealing with the Motherboard itself, so to alter it in any significant way isn't just putting your GPU or sound cards at risk, but the entirety of your system.

As we've *thoroughly* detailed, the benefits are minimal and risks are gargantuan, so do as much research as possible before delving into this risky endeavor.

If you are more on the cautious side, consider this article an extra cautionary piece of literature with a little dose of knowledge for you to add to your PC brain.

If you need a performance boost, overclocking the graphics cards and CPU are not only more effective, but safer to do as well.