

underclock or overclock your computer

I recently was asked about the pros and cons of over and underclocking a computer system. The answer to this question was found on the jamiebalfour04 YouTube channel. I also decided to write a short guide as well.

Before I explain to you how to overclock or underclock your computer, you must first understand what this means.

Within the computer, there is a central processing unit (CPU). This device will process information. However, the CPU has a "clock" within it. This clock is in charge of sending out information in timing with the rest of the computer. If the clock is at a higher frequency, the information can be processed quicker, as the frequency (in Hz) defines the number of clock pulses per second.

The idea of overclocking is designed to get a faster system, however, it comes at a cost. Overclocking reduces the useful life of the CPU and, in some cases, the other hardware in the system. Underclocking does the opposite, it results in a slower system, but in a longer life on the CPU. Please note that overclocking only works on systems which have been custom built.

To over/underclock a system, you must access it from the BIOS (Basic Input/Output System). But before you muddle around with the setting there, please ensure you are familiar with the formula:

$$\text{clock speed (GHz)} = \text{Multiplier} \times \text{Base Speed (MHz)}$$

The base speed is the Front Side Bus base speed as well. So for instance in the majority of CPUs the FSB is quad pumped (using Quad Data Rate or QDR), so this means that it is four times the speed of the base speed. So in an Intel Core 2 Quad with an FSB of 1333MHz, the base speed is 333MHz. This means that if the system uses a multiplier of 8.5, the system will run at 2.83GHz.

So, if you want a system with a 1333MHz FSB to run at 3.3GHz, you must first figure out that the base speed is 333MHz and then divide 3.3GHz by the base speed, giving 10. So you defined your multiplier as 10.

Now you can change the settings from the BIOS.

