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OVERCLOCKING A PC IS MATH

A processor's clock speed is derived from the system base clock, which is 266 MHz in the case of the Intel FSB1066 bus, multiplied by a so-called clock multiplier.

The **Core 2 Duo E6300** runs at **1,866 MHz (1.86 GHz)**, which it reaches by multiplying 266 MHz by 7.

It would be just perfect to select a higher core clock speed by increasing the multiplier, but unfortunately the CPU manufacturers lock the multiplier at the default value.



This means that the only way to run a processor beyond its rated clock speed is to increase the system clock speed.

Current platforms such as the **P965** chipset offer great overclocking margins, but be sure that you know of the dependencies related to the system clock: the main memory clock speed is derived from the base clock as well. If you increase the 266 MHz base clock to 333 MHz, the memory will be running at the same 25% clock speed increase.

In turn, this means that you either have to purchase high-performance memory for overclocking, or you have to set the memory to a slower speed, so it still works at your preferred overclocking settings.

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HOW TO CALCULATE CPU SPEED

- Log in to an administrator account in **Windows 7/Vista/XP**.
- Download one of the freely available programs that retrieve hardware/CPU information. (See Download section below this article for the links to two such freeware programs.)
- Click “**Start**” in Windows XP/Vista/7 and choose “Computer” to open **Windows Explorer**. Navigate to the folder where the freeware was saved. Double-click the setup file and follow the onscreen instructions to install the program.
- Launch the freeware installed in Step 3. It may take up to 30 to 60 seconds for the program to retrieve the system information.
- Select the tab “CPU” in the program window. Write down numbers reported for “**Multiplier**” and “**Bus Speed**”.
- Multiply the bus speed (**FSB**) by the multiplier to calculate the CPU speed. For example, say you received 333 MHz and 9.5 for the bus speed and multiplier values. CPU speed is $333 \text{ MHz} \times 9.5 = 3163.5 \text{ MHz}$ or **3.16 GHz**.

DOWNLOAD

There are a lot of utilities to show CPU and FSB info. Two of the most popular are:

- [PC Wizard \(CPUID\)](#);
- [Crystal Disk Info](#);

In particular PC Wizard can show not only CPU/FSB info, but also a lot of other RAM and general system info / hardware configuration.

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