

## PowerLeap PL-P4P™ Configurator Utility

The purpose of this guide is to provide you with information on how to configure your new PL-P4P™ upgrade processor for maximum performance and CPU feature utilization.

**Please note that the P4P Configurator is required in order to run your PL-P4P processor upgrade at full speed.**

### **Background and Introduction:**

In contrast to desktop versions of the Intel Pentium 4 processor, which have fixed clock multipliers and voltages, the Mobile Pentium 4 has a *variable clock multiplier* and *variable core voltage*.

The clock multiplier is the factor by which the processor multiplies the Front Side Bus (FSB) in order to arrive at the internal core speed. The core voltage is the amount of current that is supplied to the processor.

So, for example, in the case of a PL-P4P™ 3200P upgrade with a 3.20 GHz Mobile Pentium 4, the FSB\* is 133 MHz and a clock multiplier of 24x is required in order for the processor core to run at its 3.20 GHz rated speed.

When used in a notebook PC, the Mobile Pentium 4 processor's variable clock multiplier is controlled by the system chipset. However, when used in a desktop PC, there is no chipset control of the clock multiplier, and the Mobile Pentium 4 reverts by default to its default power-on setting, which is considerably lower than the maximum value. This would, ordinarily, result in the PL-P4P™ processor upgrade running slower than its rated core speed.

To correct this, PowerLeap has written a special utility for the PL-P4P, called the "**P4P Configurator**", which is included with your PL-P4P™ upgrade. The P4P Configurator allows you to easily set the processor's variable internal clock multiplier and core voltage to their maximum values so that the processor core runs at its full rated speed. The P4P Configurator can also (optionally) manage the processor's clock multiplier and voltage dynamically, increasing them when needed to provide maximum processing performance and reducing them when system load is low to reduce power consumption and heat. This capability is similar to Intel's "Enhanced Intel Speedstep Technology", or "EIST" feature available on many notebook systems that use similar processors.

The P4P Configurator consists of a Windows device driver and a Windows user interface.

### **Installation:**

- A. Download the P4P Configurator Installation from:

**[http://www.powerleap.com/downloads/Install\\_P4P\\_Configurator.exe](http://www.powerleap.com/downloads/Install_P4P_Configurator.exe)**

(Or go to [www.powerleap.com](http://www.powerleap.com), navigate to the PL-P4P page, and click on the "P4P Configurator Utility" link).

- B. Run the P4P Configurator installation.

This will install the P4P Configurator on your PC.

- C. Run the P4P Configurator.

Notice that the P4P Configurator displays the processor's core speed and your system's FSB speed, and if you haven't yet set up the P4P Configurator options, the CPU's core speed is lower than the speed rating of your new processor. The reason is the Mobile Pentium 4 processor defaults to its lowest clock multiplier value when run in a desktop PC. The P4P Configurator allows you to either manually set the clock multiplier to its highest value, or allow EIST to modulate the clock multiplier (and voltage) dynamically according to changing demands for processor power.

### **Setup and Configuration:**

- A. In **manual mode**, you set the clock multiplier to the value you want it to be (typically the maximum value available), and once set, it stays there. To use manual mode, select "Manual" under "CPU Clock Management", and then select, "Apply Settings at Startup" so that every time you boot your system the P4P configurator will automatically set the clock multiplier to your desired value. Then click on "Exit".
- B. In **automatic mode**, you allow the P4P Configurator to manage both the clock multiplier and the processor's voltage to reduce power consumption and heat during times of low system load. Naturally, when needed, the P4P Configurator device driver automatically raises the processor's clock multiplier and core voltage to the maximum, so you get all the processing power that CPU is capable of producing. To use automatic mode, select "Automatic" under "CPU Clock Management", and then select, "Apply Settings at Startup". Then click on "Apply" (do not click on "Exit", because the P4P Configurator must be running in order to manage the processor's clock multiplier and voltage. You can click on the "\_" symbol in the upper right corner of the P4P Configurator in order to dock it to the system tray).

If you are using automatic mode, you can monitor your processor's load, clock multiplier, and voltage with our associated "ThrottleWatch" utility, available here:

<http://www.panopsys.com/Downloads.html>

### **Questions:**

If you have any questions or problems with the PL-P4P™, or the P4P Configurator, please contact PowerLeap technical support at:

<http://powerleap.custhelp.com/cgi-bin/powerleap.cfg/php/enduser/ask.php>

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\*FSB in this context is the "raw" FSB - before being "quad-pumped" (4x) to 533 MHz to form the "processor bus speed", which is typical of all Pentium 4 processors.

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