X-C 6250 Computer

Testing Application CPU Usage
to Reduce Power Consumption

One of the major differences between a desktop and a portable computer is the amount of power available and the management of that power. A desktop gets all the power it needs from AC power. Power management is not a consideration; generally, the only time-out for a desktop computer is associated with screen savers to protect the monitor. In a portable environment, power in the form of a battery pack is packaged and carried with the computer. One of the most efficient ways to reduce battery power consumption in a portable computer is to check the activity of the Central Processing Unit (CPU) and then make changes accordingly.

Some applications are not intended to run in portable environments and consequently do not allow the CPU to go into a reduced power mode when they are not being used. This places additional power demand on the system and drains the battery faster. In some instances, applications may require modification to optimize performance in a portable environment.

To determine if an application is consuming an inordinate amount of CPU time, run each application in all of its operating modes while running Windows 95 System Monitor. This includes dial up access, network cards, peripherals, and all drivers.

Only run System Monitor while testing since System Monitor keeps the CPU running at 100 percent while capturing CPU utilization of other applications.

To run System Monitor

1   From the Start Menu, choose Programs, Accessories, System Tools, and then choose System Monitor.
2   From the Options menu of System Monitor select Chart.
3   Set the Update interval to 1 second, and then choose OK.
4   If the Kernel Processor Usage % chart is not being displayed:

   • From the Edit menu, select Add Item.

   • Select "Kernel" in the Category box and "Processor Usage (%)" in the Item box.

   • Choose OK.

   If the information being displayed is not in line chart format, select LineChart option under the View menu.

Once System Monitor is configured properly, run each application in all of its operational modes (for example, online vs offline, network vs standalone). All common screens should be evaluated including password screens and error boxes. The application should also be tested with any peripherals that would normally be connected such as CD-ROM drives, network cards, or floppy drives. While testing, pause in each screen/mode for about ten seconds, and then switch to System Monitor using ALT+TAB (or arrange the System Monitor window so it is visible on the desktop while the application under test is running). Also, with the application under test running, make sure the unit suspends after a few minutes of continuous idle time. Check the percentage of CPU usage by the application. An unruly application will show an excessive amount of CPU usage often near 100 percent.

Note An example condition of 100 percent CPU/Kernel usage can be seen by holding down the mouse and dragging on the Windows 95 desktop.