

Major Breakthrough Reached in Power Management Technology

Responding to concerns from Information Technology (IT) managers, a major breakthrough in power management technology has been reached with the full participation of leading companies and U.S. EPA's ENERGY STAR Program. Industry experts believe these new power management (PM) features and technology will solve many of the technical challenges of the past, while providing dramatic improvements in energy efficiency and performance. This breakthrough was driven by new, more aggressive energy efficiency specifications established for ENERGY STAR - qualified computers, and marks a milestone in the ongoing government/industry effort to address today's environmental problems utilizing available technology.

The EPA's ENERGY STAR Program works voluntarily with manufacturers from many industries to design and market a wide range of energy efficient products and to educate the public about their benefits.

The electricity used to run office equipment costs consumers and businesses \$2.5 billion every year on their utility bills. About 10 years ago, industry experts recognized that equipment such as the computer could operate on much less energy. The IT industry developed the power management or "sleep" feature that improved the energy efficiency of office equipment like computers, while helping to extend the life and performance over the long run.

Today, virtually all office equipment manufacturers now integrate power management features into the basic design of office equipment, (computers, monitors, printers, faxes, copiers, scanners, and multi-function (all-in-one) devices).

Although PM technology has always been sound, rapid computer advances such as LAN and the Internet quickly "outgrew" existing power management (PM) capabilities. To address this problem, EPA and industry worked hard to develop a new and improved PM solution that is compatible with the evolution of computers. This technology is now available in today's products.

The following chart dispels some lingering myths about power management.

◆ Before

1. Computers took a long time to exit sleep mode—to "wake up."
2. PM grew incompatible with the rapidly growing advancements in computers.
3. PM caused accessibility problems and computer crashes.

◆ Now

1. With IAPC (Instantly Available PC), manufacturers can now design computers that go to extremely low-power modes (less than 5 watts) while awakening instantaneously.
2. Today, Power Management is incorporated at the design level. Mission critical workstations can support it.
3. Today this feature is based on open industry standards and interacts seamlessly with hardware and software.

◆ **Myth**

1. It's hard to activate PM.
2. PM on a hard-drive reduces the life of the hardware.
3. If I have a screen saver, I'm using PM and saving energy.
4. If my computer has the ENERGY STAR label on it, then my computer must be using less energy.

◆ **Fact**

1. PM is simple to activate through options on your desktop. Most computers already have it enabled.
2. Hard drives today fully support the feature. They are set to stop "spinning" when the computer has been left idle for some time. A cooler-running hard drive prolongs the life of the unit.
3. Screen savers do not save money on utility bills or use less energy. Your monitor is still fully active when a screen saver is in use.
4. Unless your ENERGY STAR power management feature is enabled, you will not enjoy the energy/ money saving benefits of your ENERGY STAR product.

When is power management working?

Power management works when you stop working. PM is engaged when you leave your computer idle for a set amount of time (a time the user can adjust) and the monitor goes black. The monitor should also go black after a screen saver has been on for some amount of time. However, when the screen is dark, or black, it's not really off; it is simply sleeping, cooling down and reducing wasted heat at a time when full power is not required. A simple move of the mouse or touch of the keyboard will cause it to power up. Many new computers now come with a special sleep button on the monitor or keyboard, so with a quick touch, the computer immediately powers down and sleeps. This feature is particularly popular in laptops but is finding its way into desktop and desktside designs.

Benefits for home and business users and the environment

Businesses can reap tremendous financial savings by using power management for computers and other office equipment. In a commercial networked business environment, computers are increasingly left on continuously to allow IT staff to perform remote servicing, and other functions done during off hours. With PM, a computer can awaken from the "sleep" mode to perform a task. Once the task is complete, the computer re-enters the sleep mode.

By enabling the office equipment PM features and allowing the products to “sleep” when not in use, a company will reduce their utility costs in more ways than one. For example, sleeping office equipment generates less waste heat which helps to reduce the load on the air conditioning system. This should make the office environment more comfortable and the staff more productive.

Enabling the PM features of office equipment can reduce operating costs and serve as an important part of any organization’s environmental program.

Home office users can also benefit from PM. The average home office with a computer, monitor, printer, fax and copier, could save more than \$100/year on their electricity bills - - savings that could offset other costs of operating a small business. These [home savings](#) can also translate into big savings for the environment, significantly reducing the amount of fossil fuels burned to generate the wasted electricity.

Office equipment represents one of the fastest growing sources of energy use in both homes and businesses. The growing use of the Internet is also expanding the number of hours many computers are in use. These changing patterns mean more wasted energy when products are left on but not in use. ENERGY STAR compliant computers and office equipment, with enabled PM features, reduce that waste significantly. For example, the average monitor in the ENERGY STAR database consumes 88 watts in its active power mode. However, when it is sleeping, that average drops to 11 watts – a reduction of over 87%. In fact, many new monitors today consume as little as 3 to 5 watts in their sleep mode.

This year alone, ENERGY STAR office equipment will have the environmental impact equivalent of taking 2 million cars off the road for one year.

What does the future hold for power management?

Power management is now a fully integrated feature for office equipment. It’s here to stay and will continue to evolve. Computer operating systems such as Windows 2000 is expected to support the power management of individual computer components. Fax cards, for example, will go into a “zero power consumption” state when not in use, then go into an active mode upon receiving a command, and return to virtually zero power consumption state upon task completion. Individual component management will deliver considerable savings. For example, if a computer is playing a music CD, but performing no other function for the user, many of the internal devices and components will power down. This results in only a few watts consumed as opposed to much more than 130 to 200 total watts for an entire system.

What are two key companies saying about power management?

“Business users will benefit from lower average power consumption – up to a 60 percent average power saving... Users will no longer be required to make critical trade-offs between system performance, connectivity and efficient power saving.”

- David Chan, Strategic Initiatives Manager, **Intel Corporation**

“Continual improvement in energy efficiency of IBM’s computers, monitors, and printers through design and power management features is a key ingredient in helping our customers reduce the total cost of ownership...this also helps the environment by minimizing demand on electricity.”

– Mary Ann Flandera Christie, Program Manager, **IBM**

Persons wanting more information on the power management technology included in their office products are encouraged to contact the manufacturer of those products directly.

Please contact Craig Hershberg at the Environmental Protection Agency for more information about the benefits of power management and the ENERGY STAR programs. Craig can be contacted at (202) 564-1251, hershberg.craig@epa.gov.