



# Energy-efficient AMD Desktop Processors

A REAL-WORLD ANALYSIS OF POWER USAGE



## Energy savings for work and home

AMD is devoted to energy efficiency with leading technology for lowering power consumption. With AMD desktop processors and platforms, businesses and consumers have the opportunity to be environmentally responsible by balancing computing needs and power consumption. AMD is providing new information on system and processor power consumption to help you make the best decision and to understand the financial and environmental factors in PC power consumption.

Through a comprehensive, scientific survey, AMD gathered the information to accurately characterize how people in several countries used their computers, both at home and in business. We looked at relevant factors including which applications were used, for how long, and whether or not computers were powered down when not in use.

Based on the information gathered, AMD re-created actual usage scenarios and tested them on real machines. The result? Useful and accurate information on desktop power consumption.

These real-world usage scenarios confirm that AMD technologies result in proven, measurable benefits for businesses and consumers — benefits including reduced power usage, lower energy costs, and greener PC operation.

### AMD Cool'n'Quiet™ technology enhances energy efficiency

AMD Cool'n'Quiet™ technology delivers proven, measurable benefits for businesses and consumers, including reduced power usage, lower energy costs, and greener PC operation. It does this by allowing a system to match processor utilization to the performance actually required.

In 2005, AMD received an ENERGY STAR® Award from the U.S. Environmental Protection Agency for Cool'n'Quiet technology, which reduced active power consumption by up to 40 watts, or over 25 percent per computer.

Constantly innovating based on customer needs, AMD has continued to develop more and better power saving technologies. One example is C1 Enhanced (C1E), an advanced power management feature that works with Cool'n'Quiet™ 2.0 technology and reduces overall power consumption by slowing select system functions when not in use. A 55.3% power savings can be observed at idle using Cool'n'Quiet with C1E support when compared to idle using no Cool'n'Quiet support.

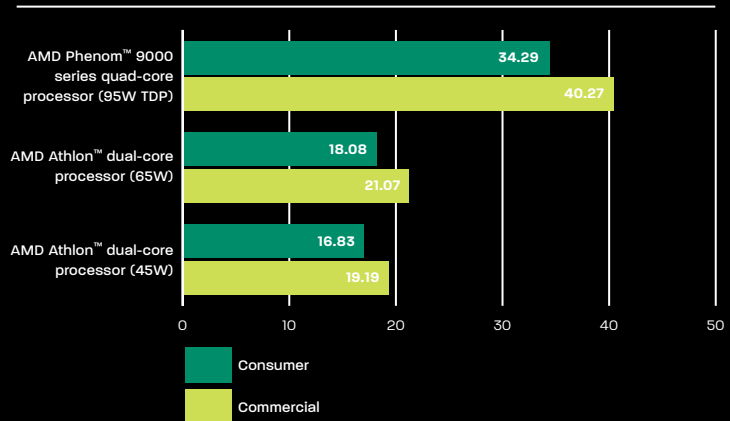
## Dollar Savings

### When every dollar counts, count on AMD

AMD technologies combine to reduce system power consumption, enabling consumers and businesses to run real-world applications efficiently and use less energy.

AMD brings together meaningful innovations, such as Direct Connect Architecture, HyperTransport™ 3.0 technology, and an integrated DDR2 memory controller for true performance and energy efficiency. AMD processors are designed to use less power but still offer exceptional performance. So you can take the money saved by reducing your electricity bills and invest where it really counts.

Annual System Electricity Cost  
In Dollars per Year @ 10¢ per KW/h

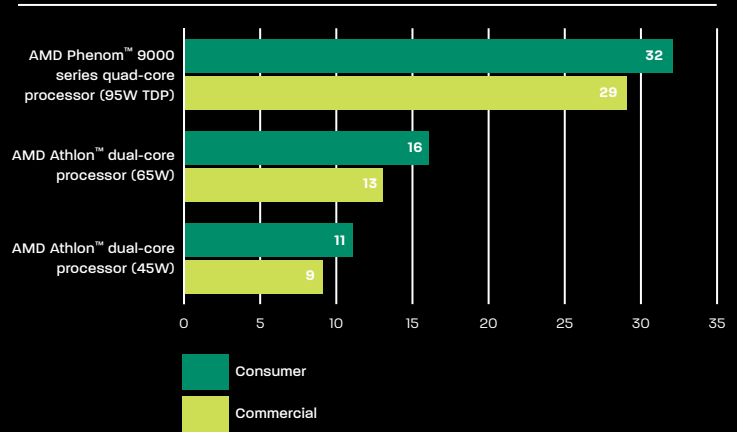


# Power Savings

## Welcome to the age of “less is more”

AMD is committed to the continued development of technologies that save power without compromising performance. With the next generation of award-winning power saving technology, Cool'n'Quiet™ 2.0 technology is designed to enable a reduction of heat and noise so you can experience amazing performance without distraction. AMD Phenom™ 9000 series quad-core processors feature AMD CoolCore™ technology, an AMD technology that individually manages power consumption across all four cores, which is designed to maximize performance while minimizing power consumption and heat. The new generation of energy-efficient AMD Athlon™ 64 dual-core processors are designed for PCs that create less heat and noise, while delivering exceptional performance. And because AMD processors are energy efficient, you can also increase the lifespan of your PCs.

Average CPU Power Consumption  
Watts

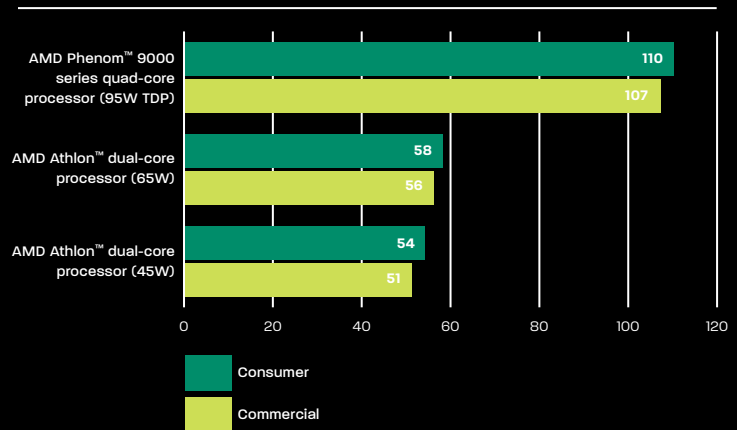


# Greenhouse Gas Savings

## An easy way to reduce your environmental impact

If you're a consumer who recycles and carpools or a business that wants to demonstrate its environmental responsibility and sustainability, you're probably also looking for a more energy-efficient PC. Make the smarter choice with new energy-efficient AMD processors, and feel good about reducing your impact on global warming.

Average System Power Consumption  
Watts



AMD surveyed over 1200 users to determine consumer and commercial usage patterns (daily time spent on each application or at idle) in four countries. Corresponding application power consumption was measured in AMD labs, and the final power results were weighted by the time spent on each application. AMD directly instrumented motherboards to measure processor power consumption and used a wall meter to measure total system power consumption. AMD tested production AMD Phenom processors, AMD internal engineering motherboards with AMD 790FX chipsets, an ATI Radeon HD 3850 graphics adapter, 1GB of DDR2-800 memory, one 250GB 7200RPM HDD, one DVD drive, and a high efficiency power supply. AMD tested production AMD Athlon X2 processors rated at both 45W and 65W TDP, MSI MS-7327 motherboards and AMD 690 chipsets, 1GB of DDR2-800 memory, one 7200RPM HDD, and a high efficiency power supply. Approximate weighting for consumer includes: Gaming 4%, Music Entertainment 4%, Transcode Multitasking 3%, Internet Content Creation 4%, Broad Based Productivity 36%, Media Playback Multitasking 4%, and Windows idle 44%. Approximate weighting for commercial includes: Transcode Multitasking 2%, Internet Content Creation 3%, Broad Based Productivity 53%, Video Content Creation 1%, Image Content Creation 2%, and Windows idle 39%.



“Customers are demanding a renewed focus on energy efficiency and AMD is responding by delivering more energy-efficient desktop processors that can help OEMs innovate and deliver small, sleek PC designs that enable businesses and consumers to save energy. AMD has established leadership in both desktop and servers with energy efficiency, and we are extremely pleased to once again raise the bar in desktop energy efficiency.”

Greg White  
Vice President  
Desktop Business, AMD

## Finally, a power analysis that reflects how you really use computers

You no longer have to make computing choices based on theoretical power savings. Now, you can evaluate PC s based on real-world usage scenarios. And in the real world of business and consumer computing, it's clear that AMD processors offer tangible benefits including:

- Electricity cost savings
- Smaller, sleeker form factors that generate less heat and noise
- Less use of energy resources
- Lower greenhouse gas emissions

It all starts with AMD innovations designed specifically to meet the needs of real customers. This focus on customer-driven innovation is why AMD is the industry leader in developing advanced technologies like power management, and 64-bit and multi-core computing that are driving datacenters and desktops to new levels of efficiency while meeting today's growing computing demands.

As the world becomes increasingly energy conscious, AMD continues to make energy efficiency a priority – from the datacenter to the desktop.

**To learn more about the power saving benefits of AMD, visit [www.amd.com/coolnquiet](http://www.amd.com/coolnquiet)**

