

# You Have the Power

## AMD Athlon™ Processor Product Brief

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- ▶ Outstanding Performance for Cutting-Edge Applications
- ▶ The Most Powerful Multimedia Experience in an x86 Platform
- ▶ Tomorrow's Technology Today
- ▶ Powering the Next Generation in Computing Platforms
- ▶ The Power of a Reliable Partner

### AMD Athlon™ Processor Overview

The AMD Athlon™ processor is among the world's most powerful engines for PC computing, and represents the industry's first seventh-generation x86 microarchitecture. The AMD Athlon processor family is designed to power the next generation in x86 computing platforms. It meets the computation-intensive requirements of cutting-edge software applications running on high-end desktop systems, workstations, and servers. All AMD Athlon processors are now produced using 0.18-micron process technology.

Business users who work with image processing, digital content creation, CAD/CAE, scientific applications and other computationally-demanding software will benefit from the tremendous processing power of AMD Athlon processor-based systems. Computing enthusiasts who want the performance and clock speeds required to run the latest 3D gaming, entertainment, Internet, and personal productivity software will benefit from desktop systems powered by the AMD Athlon processor.

### Outstanding Performance for Cutting-Edge Applications

The AMD Athlon processor's seventh-generation microarchitecture, including a high-bandwidth system bus and on-die L2 cache\*, enables it to attain outstanding levels of performance. Plus, the AMD Athlon processor delivers industry-leading integer, floating point, and 3D multimedia performance for x86 platforms.

\*While all AMD Athlon processors currently being manufactured by AMD feature 256K of full-speed, on-die L2 cache memory, previous versions, without on-die L2 cache, may still be commercially available in some computer systems. Ask your computer manufacturer for details and refer to [processor benchmarks](#) for information regarding the performance of the previous AMD Athlon processor.

The AMD Athlon processor provides exceptional processing power on real-world, mainstream Microsoft® Windows® compatible software, as well as computation-intensive applications for high-end desktops. These high-end workstation applications include digital photo editing, digital video, commercial 3D modeling, image compression, soft DVD, CAD, and speech recognition.

### The Most Powerful Multimedia Experience in an x86 Platform

The AMD Athlon processor's ultimate x86 performance and next-generation features combine to give end users an outstanding computing experience, whether running standard productivity software or the latest leading-edge consumer and commercial applications.

Computing enthusiasts get exceptional performance for Internet applications, digital imaging, 3D gaming, and personal creativity software. The AMD Athlon processor's advanced multimedia architecture and 3D technology deliver rich images, fast frame rates, and accurate theater-quality sound. The revolutionary system bus, now running as fast as 266MHz†, allows users to quickly and easily process Internet content from DSL/cable modems and digital video imaging devices.

†Not all AMD Athlon processors are available with 266MHz system buses.

Business users get remarkable performance from AMD Athlon processor-based systems. Popular programs for desktop publishing, database, accounting, and other demanding business applications execute at fast speeds, resulting in exceptional levels of productivity. The enormous power of the AMD Athlon processor's visual computing capabilities allows users to unleash their creativity and deliver high impact Web designs and other dynamic communications to effectively reach and influence customers.

### Tomorrow's Technology Today

The seventh-generation AMD Athlon processor is based on the industry's most advanced x86 microarchitecture. The following features and capabilities combine to give users of AMD Athlon processor-based systems an extraordinary computing experience, as well as the confidence that their systems are designed to meet their computing needs for years to come.

- **Microarchitecture:** The AMD Athlon processor features a superpipelined, nine-issue superscalar microarchitecture optimized for high clock frequencies. The AMD Athlon processor contains a total of nine execution pipelines: three for address calculations, three for integer calculations, and three for executing x87 (floating point), 3DNow!™ and MMX™ instructions.

- **System Bus:**The AMD Athlon processor's system bus is the first x86 platform bus running at or above 200MHz. At present, AMD Athlon processors are available with 266MHz and 200MHz system buses. As one of the fastest x86 processor buses currently available, the design delivers as high as 100 percent more peak bandwidth than any x86 system bus. It is designed for scalable multiprocessing and leverages high-performance Alpha™ EV6 bus technology to enable exceptional system performance.
- **Floating Point Engine:** The AMD Athlon processor includes the first fully pipelined, superscalar floating point engine for x86 platforms. The resulting floating point capability is the most powerful ever delivered in an x86 processor.
- **Enhanced 3DNow!™ Technology:** The AMD Athlon processor's enhanced 3DNow! technology takes 3D multimedia performance to incredible heights and builds on the 21 instructions of AMD's original 3DNow! technology—the first x86 instruction set to use superscalar SIMD floating point techniques. Enhanced 3DNow! technology adds 24 instructions—19 to improve MMX integer math calculations and enhance data movement for Internet streaming applications and 5 DSP extensions for soft modem, soft ADSL, Dolby Digital, and MP3 applications.
- **Cache Architecture:** The AMD Athlon processor boasts a 384K total full-speed on-chip system cache including 128K L1 cache—four times that of Intel's Pentium® III processor—and 256K on-chip full-speed L2 cache. This performance-enhancing cache design helps boost overall system performance.
- **Double Data Rate (DDR) Memory:** The natural evolution from PC100/PC133 SDRAM memory, DDR memory enables unrivaled x86 performance while remaining price competitive. While other types of SDRAM memory read and write only once per clock cycle, DDR technology allows the memory to read and write twice per cycle. DDR memory is available from major DRAM suppliers around the world.

#### [Processor Architecture/Technology Competitive Comparison](#)

#### **Powering the Next Generation in Computing Platforms**

The combination of exceptional performance, high clock frequencies, performance-enhancing cache memory, impressive bus bandwidth, and a reliable design makes the AMD Athlon processor family a powerful choice for high-end desktop systems, workstations, and servers.

The AMD Athlon processor offers the peace-of-mind reliability required by enterprise users and IT managers. The AMD Athlon processor's system bus is also designed for scalable multiprocessing, with the number of AMD Athlon processors in a multiprocessor system determined by chipset implementation.

High-performance AMD Athlon processor-based platforms provide an exceptional level of performance and data-movement bandwidth for computation-intensive software used in such challenging applications as digital imaging, Internet content development, enterprise computing, CAD/CAE, scientific/technical calculations, and 3D gaming