

AMD Phenom™ Processors

Quad and triple-core performance for life-like gaming, crystal clear digital media and serious multitasking



NAME

AMD Phenom™ X4 Quad-Core Processors

AMD Phenom™ X3 Triple-Core Processors

SOUNDBITE

Experience the phenomenal with next-generation AMD Phenom™ Processors

FEATURES

- True Multi-core Processing
- Direct Connect Architecture
- Integrated Dual-Channel Memory Controller with up to DDR2-1066 support
- HyperTransport™ 3.0
- AMD Balanced Smart Cache
- AMD Wide Floating Point Accelerator
- AMD Memory Optimizer Technology
- AMD Digital Media Xpress™ 2.0
- AMD Virtualization™ with Rapid Virtualization Indexing
- Cool'n'Quiet™ 2.0 technology



End User Benefits

POWERFUL

- **Extreme multitasking performance:** Don't even think of waiting on your PC anymore. Powerful AMD Phenom™ processors can take whatever you dish out, even when you max it out. Want to play a DVD on your PC while you IM, surf, and email? No worries. AMD's true quad and triple-core architecture is designed for extreme multitasking performance.

VISUAL

- **High quality, accelerated, high-definition video playback:** With a combination of AMD Phenom™ processors and ATI Radeon™ HD graphics, enjoy high-definition video with extreme resolution, quality, and performance. Get full HD-DVD and Blu-ray support, with processing and graphics performance designed for crisp video quality, superior image clarity and high-definition playback. Experience Windows Vista® in high-definition with support for DirectX 10, HDMI with 5.1 surround sound, and Unified Video Decoder (UVD) technology for high-fidelity HD media playback in select graphics processors.

EFFICIENT

- **With the next generation of award-winning Cool'n'Quiet™ technology,** Cool'n'Quiet™ 2.0 reduces heat and noise so you can experience amazing performance without distraction. Combined with core enhancements that improve overall power savings, the AMD Phenom™ Processor delivers seamless multitasking and optimum energy efficiency. Work, play, talk, and share on a PC that's seen, not heard.

Product Features

- **True multi-core processing** enables better multitasking so users can run more applications and do more in less time
- **Direct Connect Architecture** delivers leading-edge PC system performance
- **Integrated dual-channel DDR2 memory controller with up to DDR2-1066 support** allows dramatic application performance improvements with greater system throughput and lower latency so users can get a better PC experience
- **HyperTransport™ 3.0 technology** provides incredible system agility for improved 3D graphics performance
- **AMD Balanced Smart Cache** supports a better multi-tasking and multi-threaded experience
- **AMD Wide Floating Point Accelerator** to improve digital media and 3D gaming experiences
- **AMD Memory Optimizer Technology** helps improve performance of multi-threaded software
- **AMD Digital Media Xpress™ 2.0** delivers sharper and more life-like 3D graphics
- **AMD Virtualization™ with Rapid Virtualization Indexing** helps virtualization software to run more securely and efficiently
- **Cool 'n' Quiet™ 2.0 technology** enables cooler and quieter platform designs by providing extremely efficient performance and energy usage

Operating System Compatibility

The AMD Phenom™ processors are designed to be compatible with Microsoft® Windows Vista® Ultimate, Windows Vista Home Premium, Windows Vista Home Basic, Windows Vista Business, Windows Vista Enterprise, Windows® XP Professional x64 Edition, Windows XP Professional, Windows XP Home Edition, Windows 98, Windows ME, Windows XP Media Center Edition, Windows NT®, Windows 2000, Linux®, and other PC operating systems. For more information, visit www.amd.com.

AMD Phenom™ X4 Quad-Core and AMD Phenom™ X3 Triple-Core Processor Product Specifications

Cache Size	L1 Cache (Instruction + Data): 128KB x4 (64KB + 64KB for each core) L2 Cache: 512KB x4(quad-core); 512x3 (triple-core) L3 Cache: 2MB Shared L3
Process Technology	65-nanometer SOI (silicon-on-insulator) technology
HyperTransport™ Technology Links	One 16-bit/16-bit link @ up to 4000MT/s full duplex; or up to 16.0GB/s I/O Bandwidth
Memory	Integrated DDR2 memory controller—up to 17.1GB/sec dual channel memory bandwidth
Types of Memory	PC2 8500 (DDR2-1066) ; PC2 6400 (DDR2-800); PC2 5300 (DDR2-667); PC2 4200 (DDR2-533); PC2 3200 (DDR2-400) DDR2 unbuffered
Die Size	65nm = 285mm ²
Transistors	65nm = 450million
Chipsets	Solutions are now available from AMD
Packaging	Socket AM2+ - 940-pin organic micro Pin Grid Array (micro-PGA)

AMD Phenom™ X4 Quad-Core Processor Product Model Comparison

MODEL NUMBER	CLOCK FREQUENCY	SYSTEM BUS	PACKAGE PROFILE	VOLTAGE	MAX TEMP	TDP	TOTAL DEDICATED L2 CACHE	L3 CACHE	CMOS TECH
9850	2.5GHz	4.0 GT/s	Socket AM2+	1.20/1.25V	61°C	125W	2MB	2MB	65nm SOI
9750	2.4GHz	3.6 GT/s	Socket AM2+	1.20/1.25V	61°C	125W	2MB	2MB	65nm SOI
	2.4GHz	3.6 GT/s	Socket AM2+	1.10/1.15/1.20/1.25V	70°C	95W	2MB	2MB	65nm SOI
9650	2.3GHz	3.6 GT/s	Socket AM2+	1.10/1.15/1.20/1.25V	70°C	95W	2MB	2MB	65nm SOI
9600	2.3GHz	3.6 GT/s	Socket AM2+	1.10/1.15/1.20/1.25V	70°C	95W	2MB	2MB	65nm SOI
9550	2.2GHz	3.6 GT/s	Socket AM2+	1.10/1.15/1.20/1.25V	70°C	95W	2MB	2MB	65nm SOI
9500	2.2GHz	3.6 GT/s	Socket AM2+	1.10/1.15/1.20/1.25V	70°C	95W	2MB	2MB	65nm SOI
9100e	1.8Ghz	3.2 GT/s	Socket AM2+	1.10/1.125/1.15V	61°C	65W	2MB	2MB	65nm SOI

AMD Phenom™ X3 Triple-Core Processor Product Model Comparison

MODEL NUMBER	CLOCK FREQUENCY	SYSTEM BUS	PACKAGE PROFILE	VOLTAGE	MAX TEMP	TDP	TOTAL DEDICATED L2 CACHE	L3 CACHE	CMOS TECH
8750	2.4GHz	3.6 GT/s	Socket AM2+	1.10/1.15/1.20/1.25V	70°C	95W	1.5MB	2MB	65nm SOI
8650	2.3GHz	3.6 GT/s	Socket AM2+	1.10/1.15/1.20/1.25V	70°C	95W	1.5MB	2MB	65nm SOI
8600	2.3GHz	3.6 GT/s	Socket AM2+	1.10/1.15/1.20/1.25V	70°C	95W	1.5MB	2MB	65nm SOI
8450	2.1GHz	3.6 GT/s	Socket AM2+	1.10/1.15/1.20/1.25V	70°C	95W	1.5MB	2MB	65nm SOI
8400	2.1GHz	3.6 GT/s	Socket AM2+	1.10/1.15/1.20/1.25V	70°C	95W	1.5MB	2MB	65nm SOI