

AMD Athlon™ II Processors

High performance and true multi-tasking capability with AMD64 technology



NAME

AMD Athlon™ II X2 Dual-Core Processor

AMD Athlon™ II X3 Triple-Core Processor

AMD Athlon™ II X4 Quad-Core Processor

SOUNDBITE

Do more in less time with amazing multi-core performance at a great price.

FEATURES

- > True Multi-Core Processing
- > AMD Dedicated Multi-Cache
- > AMD Virtualization™ (AMD-V™) Technology
- > AMD PowerNow!™ 3.0 Technology
- > HyperTransport™ 3.0 Technology
- > Simultaneous 32-bit and 64-bit Computing



The future is fusion

End User Benefits

EXCEPTIONAL PERFORMANCE

- Take advantage of true multi-core performance and true multitasking capability
- Get a PC experience optimized to deliver the benefits of the Microsoft® Windows® 7 operating system¹
- Convert music, HD video, and other media fast^{2,3}
- Manage all your home media files and run the software you need to create, share, and enjoy your media^{2,3}

EFFICIENCY

- Take advantage of energy efficiency you'll feel good about for a green, cool, and quiet PC experience
- Save energy, get the most out of your budget, and help reduce heat and noise to reduce the environmental impact of your PC
- Enjoy performance on demand when you need it and power savings when you don't using next-generation AMD desktop power management technologies
- Get improvements over previous-generation AMD Athlon™ II processors: slash your power consumption by up to 50% when doing basic tasks, 40% when running heavy load, and 50% when idle⁴
- Helps enable Energy Star® compliance with idle-power improvements such as low core voltages and enhanced cache power management

Product Features

- **True Multi-Core Processing** - The extensive AMD64 architectural optimizations and features enable thorough integration of multiple cores within the same processor, with each core having its own L1 and L2 caches.
- **AMD Dedicated Multi-Cache** - Each core has its own dedicated L2 cache, which enables simultaneous independent core access to L2 cache, eliminating the need for cores to arbitrate for cache access. This helps reduce latency on L2 cache accesses.
- **AMD Virtualization™ (AMD-V™) Technology** - Silicon feature-set enhancements designed to improve the performance, reliability, and security of both existing and future virtualization environments.
- **AMD PowerNow!™ 3.0 Technology** - The latest power management technologies that deliver performance on demand when you need it, and power savings when you don't.
- **HyperTransport™ 3.0 Technology** - Third-generation HyperTransport™ technology interface improves performance, supporting transfer speeds up to 4.4GT/s.
- **Simultaneous 32-bit and 64-bit Computing** - AMD64 technology enables a breakthrough approach to 64-bit computing that doubles the number of registers in the processor and allows PC users to use today's 32-bit software applications while enabling them to also use the next generation of 64-bit applications.

¹ Windows® 7 capable PC configuration required

² Additional hardware or software may be required.

³ Recording of content may be subject to digital rights management (DRM) restrictions.

⁴ Based on comparison of processor performance states of 65nm 95W AMD Athlon™ 7850 to 45nm 65W AMD Athlon™ II X2 250 processors. Power under heavy load calculated using performance state P0 for AMD Athlon™ 7850 processor and a combination of P0 and P1 for AMD Athlon™ II 250 processor. Power under light load calculated using performance state P1 for AMD Athlon™ 7850 processor and P3 for AMD Athlon™ II 25 processor. Power during idle calculated using performance state of C1E for both processors.

AMD Athlon™ II Processor Product Specifications

Cache Size	L1 Cache: 64K of L1 instruction and 64K of L1 data cache per core X2 > 256KB total L1; X3 > 384KB total L1; X4 > 512KB total L1 L2 Cache: X2 > 2MB; X3 > 1.5MB; X4 > 2MB
Process Technology	45-nanometer SOI (silicon-on-insulator) technology
HyperTransport™ technology links	One 16-bit/16-bit link @ up to 4.0GHz full duplex (2.0GHz x2)
Total Processor-to-System Bandwidth	X2 > Up to 33.1GB/s bandwidth [Up to 17.1 GB/s total bandwidth (DDR3-1066) + 16.0GB/s (HT3)] Up to 28.8GB/s bandwidth [Up to 12.8 GB/s total bandwidth (DDR2-1066) + 16.0GB/s (HT3)] X3, X4 > Up to 37.3GB/s total bandwidth [Up to 21.3 GB/s memory bandwidth (DDR3-1333) + 16.0GB/s (HT3)] Up to 28.8GB/s bandwidth [Up to 12.8 GB/s total bandwidth (DDR2-1066) + 16.0GB/s (HT3)]
Types of Memory	X2 > Support for unregistered DIMMs up to PC2-8500 (DDR2-1066MHz) -AND- PC3-8500 (DDR3-1066MHz) X3, X4 > Support for unregistered DIMMs up to PC2-8500 (DDR2-1066MHz) -AND- PC3-10600 (DDR3-1333MHz)
Die Size	X2 > 117 mm ² ; X3 > 169 mm ² X4 > 169 mm ²
Packaging	Socket AM3 938-pin organic micro pin grid array (micro-PGA)

AMD Athlon™ II X4 Quad-Core Processor Product Model

MODEL NUMBER	CLOCK FREQUENCY	SYSTEM BUS	PACKAGE PROFILE	CMOS TECH	L2 CACHE	TDP	VOLTAGE	MAX TEMP
630	2.8GHz	4.0 GT/s	socket AM3	45nm SOI	2MB	95W	0.90-1.425V	71°C
620	2.6GHz	4.0 GT/s	socket AM3	45nm SOI	2MB	95W	0.925-1.425V	71°C

Energy Efficient AMD Athlon™ II X4 Quad-Core Processor Product Model

MODEL NUMBER	CLOCK FREQUENCY	SYSTEM BUS	PACKAGE PROFILE	CMOS TECH	L2 CACHE	TDP	VOLTAGE	MAX TEMP
605e	2.3GHz	4.0 GT/s	socket AM3	45nm SOI	2MB	45W	0.775-1.2V	70°C
600e	2.2GHz	4.0 GT/s	socket AM3	45nm SOI	2MB	45W	0.775-1.2V	70°C

AMD Athlon™ II X3 Triple-Core Processor Product Model

MODEL NUMBER	CLOCK FREQUENCY	SYSTEM BUS	PACKAGE PROFILE	CMOS TECH	L2 CACHE	TDP	VOLTAGE	MAX TEMP
435	2.9GHz	4.0 GT/s	socket AM3	45nm SOI	1.5MB	95W	0.875-1.425V	73'C
425	2.7GHz	4.0 GT/s	socket AM3	45nm SOI	1.5MB	95W	0.925-1.425V	73'C

Energy Efficient AMD Athlon™ II X3 Triple-Core Processor Product Model

MODEL NUMBER	CLOCK FREQUENCY	SYSTEM BUS	PACKAGE PROFILE	CMOS TECH	L2 CACHE	TDP	VOLTAGE	MAX TEMP
405e	2.3GHz	4.0 GT/s	socket AM3	45nm SOI	1.5MB	45W	0.775-1.2V	71'C
400e	2.2GHz	4.0 GT/s	socket AM3	45nm SOI	1.5MB	45W	0.775-1.2V	71'C

AMD Athlon™ II X2 Dual-Core Processor Product Model

MODEL NUMBER	CLOCK FREQUENCY	SYSTEM BUS	PACKAGE PROFILE	CMOS TECH	L2 CACHE	TDP	VOLTAGE	MAX TEMP
250	3.0GHz	4.0 GT/s	socket AM3	45nm SOI	2MB	65W	0.85-1.425V	74'C
245	2.9GHz	4.0 GT/s	socket AM3	45nm SOI	2MB	65W	0.85-1.425V	74'C
240	2.8GHz	4.0 GT/s	socket AM3	45nm SOI	2MB	65W	0.85-1.425V	74'C

Energy Efficient AMD Athlon™ II X2 Dual-Core Processor Product Model

MODEL NUMBER	CLOCK FREQUENCY	SYSTEM BUS	PACKAGE PROFILE	CMOS TECH	L2 CACHE	TDP	VOLTAGE	MAX TEMP
240e	2.8GHz	4.0 GT/s	socket AM3	45nm SOI	2MB	45W	0.775-1.35V	72'C
235e	2.7GHz	4.0 GT/s	socket AM3	45nm SOI	2MB	45W	0.775-1.35V	72'C