

The AMD Athlon™ 64 and AMD Athlon 64 X2 Dual-Core Processors, for Today's High-Performance Embedded Solutions



A performance and power balance for embedded systems

The performance demands on embedded systems are increasing, and AMD Athlon™ 64 and AMD Athlon 64 X2 dual-core processors provide unique features and high performance for high-end and more traditional embedded designs.

Based on the award-winning AMD64 technology with Direct Connect Architecture, the AMD Athlon 64 family of processors provides a balanced foundation for storage, telecommunications, point-of-sale, networking, military, imaging, and gaming systems, as well as other traditional embedded markets like single-board computing and industrial control.

AMD64 technology delivers a balanced approach to raw processing power, memory performance, I/O throughput, and scalability. Add the vision of 32- and 64-bit application support with native multi-core computing in a consistent thermal envelope and many embedded designers are finding their next-generation systems deliver record-breaking application performance.

What can a balanced architecture deliver?

AMD Athlon 64 and AMD Athlon 64 X2 dual-core processors with Direct Connect Architecture can improve overall system performance and efficiency by eliminating traditional bottlenecks inherent in legacy architectures, where front-side buses restrict and interrupt the flow of data. With AMD64 processors, there are no front-side buses. Instead, the processors, memory controller, and I/O are directly connected to the CPU and communicate at CPU speed. Further, the integrated memory controller dramatically reduces memory latency while HyperTransport™ technology delivers the industry's highest possible I/O bandwidth. Data speeds through the system without encountering the front-side bus bottleneck that plagues competing x86 platforms.

And all this performance comes in a low-power processor. AMD64 technology offers low operational costs with reduced power draw and heat dissipation. It also features AMD Cool'n'Quiet™ technology with Optimized Power Management, which can deliver performance on demand and minimize power consumption.

The innovation of AMD64, the ease of x86, the choice for embedded systems

In addition to performance, AMD Athlon 64 and AMD Athlon 64 X2 dual-core processors for the embedded market are NEBS-friendly and offer Error Correcting Code (ECC) to help deliver reliability and secure data transactions for embedded systems. Innovations like AMD Virtualization™ can help customers maximize server efficiency, while AMD's Torrenza initiative is designed to make it easy to incorporate application-specific FPGAs or co-processors directly onto the AMD64 platform.

AMD is committed to providing our embedded customers with choice and designing on the industry-standard x86 platform provides access to thousands of software, hardware, and development tools. AMD processors are compatible with the major Microsoft® Windows® operating systems as well as Linux®. Our goal is allowing you maximum opportunity to design the embedded system you envision and your customers demand.

Beyond outstanding processors: longevity, exceptional design support, quick time to market

The AMD64 Longevity Program ensures that the high-performance processors you select for an embedded design will be available for a longer than standard time frame. AMD understands the unique requirements of the embedded market and our AMD64 Longevity Program is in place to maximize the available choice of industry-leading x86 processors – delivering a wide range of performance, power, thermal, and packaging features.

AMD has a strong design support program in place. From RDKs to extensive and readily available documentation to a suite of leading debug tools, our goal is to make your design cycle quick and efficient, and to help you get your embedded products on the market quickly. Add this to the improved time to market achieved with utilizing commercial off-the-shelf products like the industry-standard x86 AMD Athlon 64 and AMD Athlon 64 X2 dual-core processors.

“There was a reason we wanted AMD64 technology. It gives our storage systems a balanced architecture overall, high I/O throughput, low latency memory capabilities, dual core and all with low power requirements.”

Allan Tackett
 Director, Advanced Computing Center for Research & Education
 Vanderbilt University

(Speaking on the success of his
 PowerStore™ Data Storage systems
 from Capricorn Technologies)

EMBEDDED AM2 LOW-POWER PERFORMANCE PROCESSOR FEATURES										
Model	Clock Speed	Cache	I/O Bus Speed	Dual Core	AMD64	MDX ¹	AMD-V ²	EVP ³ +	PKG	Process Technology
AMD ATHLON™ 64 X2 PROCESSOR (35W MAX TDP)										
3400+	1.8GHz	L1: 128KB x2 L2: 512KB x2	1000MHz	Yes	Yes	Yes	Yes	Yes	AM2 (940 pins)	90nm SOI
AMD ATHLON 64 PROCESSOR (25W MAX TDP) – 65nm										
3100+	2.0GHz	L1: 128KB L2: 512KB	1000MHz	No	Yes	Yes	Yes	Yes	AM2 (940 pins)	65nm SOI
AMD ATHLON 64 PROCESSOR (35W MAX TDP)										
3000+	1.8GHz	L1: 128KB L2: 512KB	1000MHz	No	Yes	Yes	Yes	Yes	AM2 (940 pins)	90nm SOI
AMD ATHLON 64 PROCESSOR (15W MAX TDP) – 65nm										
2600+	1.6GHz	L1: 128KB L2: 512KB	800MHz	No	Yes	Yes	Yes	Yes	AM2 (940 pins)	65nm SOI
AMD ATHLON 64 PROCESSOR (8W MAX TDP) – 65nm										
2000+	1.0GHz	L1: 128KB L2: 512KB	1000MHz	No	Yes	Yes	Yes	Yes	AM2 (940 pins)	65nm SOI

Note 1. Hypertransport™ technology.

Note 2. AMD Virtualization™ technology.

Note 3. Enhanced Virus Protection: Enhanced Virus Protection (EVP) is only enabled by certain operating systems, including the current versions of Microsoft® Windows®, Solaris, and BSD Unix. After properly installing the appropriate operating system, users must enable the protection of their applications and associated files from buffer overrun attacks. Contact your application software vendor for information regarding use of the application in conjunction with EVP. AMD strongly recommends that users continue to use third party anti-virus software as part of their security strategy.

www.amd.com/amd64embedded

