



High-Performance Energy-Efficient Processors for Embedded Market Segments

Intel® Core™ Microarchitecture-based Processors for Embedded Designs

Balancing embedded design challenges is complex. That's why Intel now offers a variety of Intel® Core™ microarchitecture-based dual-core processors for a broad range of demanding, low-power embedded applications, including:

- Medical Imaging, Communication servers, and Storage subsystems
- Interactive Clients (ATMs, point-of-sale devices, gaming); Industrial Control and Automation Systems; and Military, Aerospace, and Government
- Infotainment, Print Imaging, Ruggedized Mobile Devices and Tablet PCs

Our new Intel Core microarchitecture-based processors deliver high efficiency and value, so you can deliver more advanced products to your customers. And, as part of our embedded program, we provide 5 to 7 year life-cycle support for both processors and chipsets to help ensure longevity and stability for your designs and bolster your customers' assurance in your products.

Intel Core microarchitecture enables new levels of performance and power efficiency through a combination of unique processor technology advancements only from Intel.

Choices in Performance, Efficiency, and Value

Intel's new embedded processors, all produced on our 65 nm advanced process technology, let you match performance, efficiency, and value to your embedded design targets.

- **Best Performance***: Dual-Core Intel® Xeon® processors (5140^A, 5130^A and LV 5148^A) for compute- and I/O-intensive designs.
- **Best Energy Efficiency***: Intel® Core™2 Duo processor T7400^A for high-performance, low-power applications.
- **Best Value Performance***: Intel® Core™2 Duo processor E6400^A for optimal price-performance.



Intel Core microarchitecture enables new levels of performance and power efficiency through a combination of unique processor technology advancements only from Intel, enabling you to integrate more capabilities into more power-efficient designs.

- **Intel® Wide Dynamic Execution**: Execution pipelines are 33 percent wider in each core than previous generations, allowing each core to simultaneously fetch, dispatch, execute, and retire up to four instructions.
- **Intel® Advanced Smart Cache**: A multi-core optimized cache that significantly reduces latency to frequently used data, thus improving performance and efficiency by increasing the probability that each execution core of a multi-core processor can access data from a higher-performance, more efficient cache subsystem.
- **Intel® Smart Memory Access**: Improves system performance by optimizing the use of the available data bandwidth from the memory subsystem and hiding the latency of memory accesses.
- **Intel® Advanced Digital Media Boost**: Enables 128-bit Streaming SIMD Extension (SSE/SSE2/SSE3) instructions to be completely executed at a throughput rate of one per clock cycle, effectively doubling, on a per clock basis, the speed of execution for these instructions as compared to previous generations.
- **Intel® Intelligent Power Capability**: Better power-control efficiency with micro-gating of processor circuitry, which de-energizes inactive portions of the processor with finer granularity than other processors.

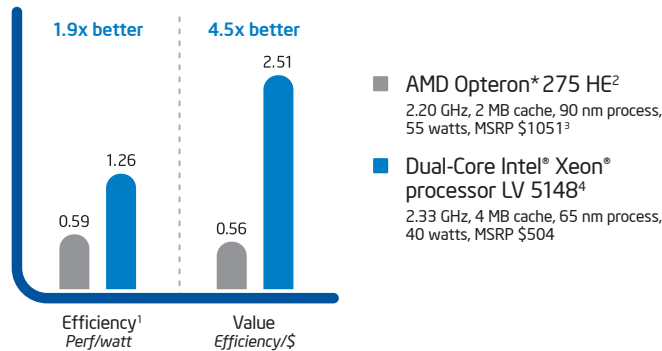
+ Relative to the three Intel Core microarchitecture products presented in this brochure.

Industry-Leading Embedded Processors

In performance/watt, Intel Core microarchitecture-based processors for embedded designs beat competitive offerings, enabling more compute density for demanding applications and higher efficiency for long life designs. As shown below, Intel offers better value as measured by performance/watt/dollar.

Dual-Core Intel® Xeon® processor LV 5148

Our most powerful embedded processor, the Dual-Core Intel Xeon processor LV 5148^Δ offers outstanding scalability and headroom for added functional density in demanding dual-processor embedded applications.

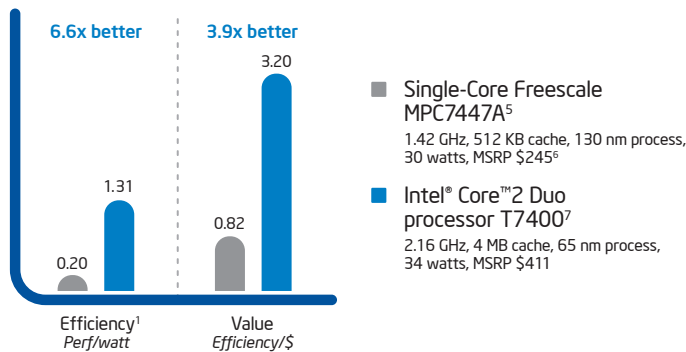


"The combination of two Dual-Core Intel® Xeon® processors 5140 with the Intel 5000X chipset in our latest RMS420-5000XI Server provides roughly 100% performance improvement over a similar server... for certain imaging applications and also provides PCI-Express x16 connectivity to support high end graphics cards."

- Wade Clowes, General Manager, Commercial Segment, RadiSys

Intel® Core™2 Duo processor T7400

The ultimate in low power and high performance, the Intel Core 2 Duo processor T7400^Δ optimally balances energy efficiency and performance for your thermally constrained applications.

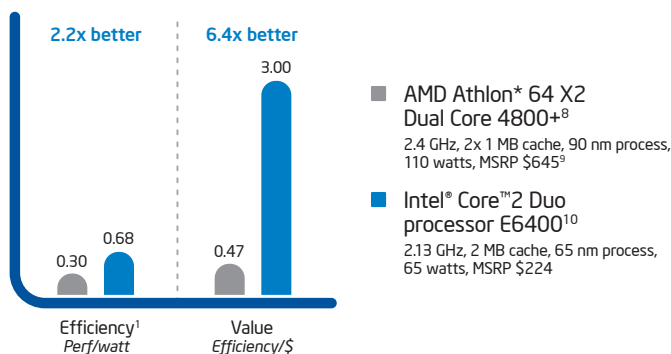


"Intel's continued innovation in multi-core processors delivers the increased performance and capabilities needed by our customers for distributed real time systems. With the new Core 2 Duo processor platform, Intel has taken another step forward in delivering high performance... that are critical to the digital factory."

- Dr. James Truchard, National Instruments president, cofounder and CEO

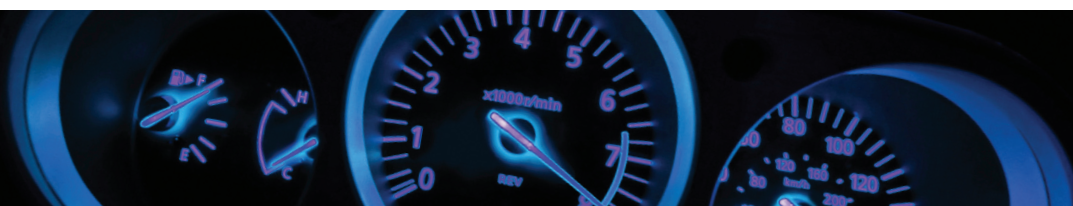
Intel® Core™2 Duo processor E6400

Combining dual-core performance with low cost, the Intel Core 2 Duo processor E6400^Δ enables enhanced capabilities in embedded designs without a price penalty.



"...The increased performance and lower power consumption delivered by the Intel® Core™2 Duo processor E6400... ideal for these markets."

- Hannes Niederhauser, CEO of Kontron





Value beyond “the Numbers”

Intel Core microarchitecture-based processors deliver the best performance and overall efficiency of today's embedded processor offerings. But there's still more to think about when making the right choice. Consider:

- Intel delivers long life-cycle support for both the processor and chipset together, making it the only company that ensures you can continue to support your products with the most advanced platform foundation available.
- Intel advanced platform technologies are specifically designed into our processors and chipsets to enable you to integrate more capabilities, such as virtualization and manageability, while conserving power.
- Intel's global capacity capabilities provide the agility required to serve your manufacturing demands.
- Intel's world-leading 65 nm process technology enables greater energy efficiency and more cores for higher performance, resulting in fewer cooling challenges and greater functional density for all design footprints.
- The Intel® Communications Alliance, a community of embedded developers using technologies, processors, products, and services from Intel help you balance price and performance today, with the headroom and scalability for next-generation solutions tomorrow. The Alliance platform solutions approach combines a multi-core architecture with complementary technologies to deliver scalable, power-efficient processing for a wide range of applications. Visit www.intel.com/go/ica to learn more.

With high performance, energy-efficient processors available for embedded designs, broad design support, and global manufacturing capacity, Intel embedded processors are your best choice for your next-generation, emerging applications.

For more information about Intel's embedded products, please visit www.intel.com/go/embedded.

^A Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See http://www.intel.com/products/processor_number for details.

¹ Efficiency measured as a simple ratio of SPECint*_rate_base2000 performance ÷ Watts consumed by the processor. Products selected for benchmarking against Intel's were determined based on competing comparable embedded products which had published test results.

² AMD - SPECint*_rate_base2000 (4 copies) for AMD Opteron* 275 HE (2.2 GHz & 2 MB L2) based on published results (December 2005) on PRIMERGY RX220 with 16GB DDR1 using Windows* Server 2003 Enterprise + SP1, Intel C++ Compiler 8.0 Build 20040318Z, Microsoft* Visual Studio* .NET 7.1.3088 (for libraries), MicroQuill SmartHeap Library Version 8.0 <http://www.spec.org/osg/cpu2000/results/res2006q3/cpu2000-20060626-06254.html>. Intel performance score = 101. AMD performance score = 64.3.

³ AMD Opteron* 275 HE configuration and pricing from www.amdcompare.com/us-en/opteron/details.aspx?opn=OSK275FAA6CB and www.amd.com/pricing.

⁴ Intel - SPECint*_rate_base2000 (4 copies) for Two 2.33 GHz Dual-Core Intel* Xeon* processors 5140 (2.33GHz & 4 MB L2) with Intel* 5000X chipset, 1333 MHz FSB based on published results (May 2006) on Dell PowerEdge* 1950 with 8 x 1 GB 667MHz ECC CL5 DDR2 FB-DIMM. Software: Microsoft Windows Server 2003 Enterprise x64 Edition + SP1 (64-bit), Intel C++ Compiler 9.1 for IA32(20060323Z), Microsoft Visual Studio .NET 2003(7.1.3088), MicroQuill SmartHeap Library 8.0 <http://www.spec.org/osg/cpu2000/results/res2006q3/cpu2000-20060626-06254.html>. Intel performance score = 101.

⁵ SPECint*_rate_base2000 for Freescale's MPC7447A* from Apple's website using a shipped version and PowerPC* optimized compiler from IBM: <http://www.apple.com/macmini/>. Freescale performance score = 6.

⁶ Freescale's MPC7447A* RISC Microprocessor configuration and pricing from "MPC7447A* RISC Microprocessor Hardware Specifications" http://www.freescale.com/files/32bit/doc/data_sheet/MPC7447AEC.pdf and press release <http://www.freescale.com/press/20060705-06411.html>.

⁷ SPECint*_rate_base2000 (2 copies) for Intel* Core™ 2 Duo processor T7400 (L2 Cache 4096KB & 2.167 GHz) performed on Cappel Valley Reference Platform with Mobile Intel* 945GM Express chipset, 667MHz FSB, and 512MB DDR2 SO-DIMM in July, 2006. Software: Linux RedHat 9.0, Kernel 2.4.20-SMP, Intel Compiler 9.0, SPEC CPU2000.1.2. Intel performance score = 44.7.

⁸ SPECint*_rate_base2000 (2 copies) for AMD Athlon* 64 X2 Dual Core 4800+ (939-pin, 2.2 GHz, & 2 x 1 MB L2) based on published results (February 2006) on Gamer's Edge DualX with 2x512MB, Mushkin DDR400 CL2 using Microsoft* Windows* XP Home Edition SP2, Intel* C++ 9.0 build 20050912Z for IA32, Microsoft* Visual Studio* .NET 7.0.9466 (libraries) MicroQuill SmartHeap Library 7.0: <http://www.spec.org/osg/cpu2000/results/res2006q1/cpu2000-20060209-05550.html>. AMD performance score = 33.4.

⁹ AMD Athlon* 64 X2 Dual Core 4800+ configuration and pricing from www.amdcompare.com/us-en/desktop/details.aspx?opn=ADA4800DAA6CD and www.amd.com/us-en/Corporate/VirtualPressRoom/0,51_104_609,00.html.

¹⁰ SPECint*_rate_base2000 (2 copies) for Intel* Core™ 2 Duo processor E6400 (2.13 GHz & 2 MB L2) based on published results (June 2006) on Precision Workstation 390 with 4x 1024MB 533MHz non-ECC CL4 DDR2 SDRAM using Windows XP Professional SP2, Intel C++ Compiler 9.1 for IA32(20060519Z) Microsoft Visual Studio .NET 2003(7.1.3088) MicroQuill SmartHeap Library 8.0: <http://www.spec.org/osg/cpu2000/results/res2006q3/cpu2000-20060705-06411.html>. Intel performance score = 44.

Performance tests and ratings are measured using specific computer systems and/or components and reflect the approximate performance of Intel* products as measured by those tests. Any difference in system hardware or software design or configuration may affect actual performance. Buyers should consult other sources of information to evaluate the performance of systems or components they are considering purchasing. For more information on performance tests and on the performance of Intel products, reference <http://www.intel.com/performance/resources/limits.htm> or call (U.S.) 1-800-628-8686 or 1-916-356-3104.

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