The best desktop chip today

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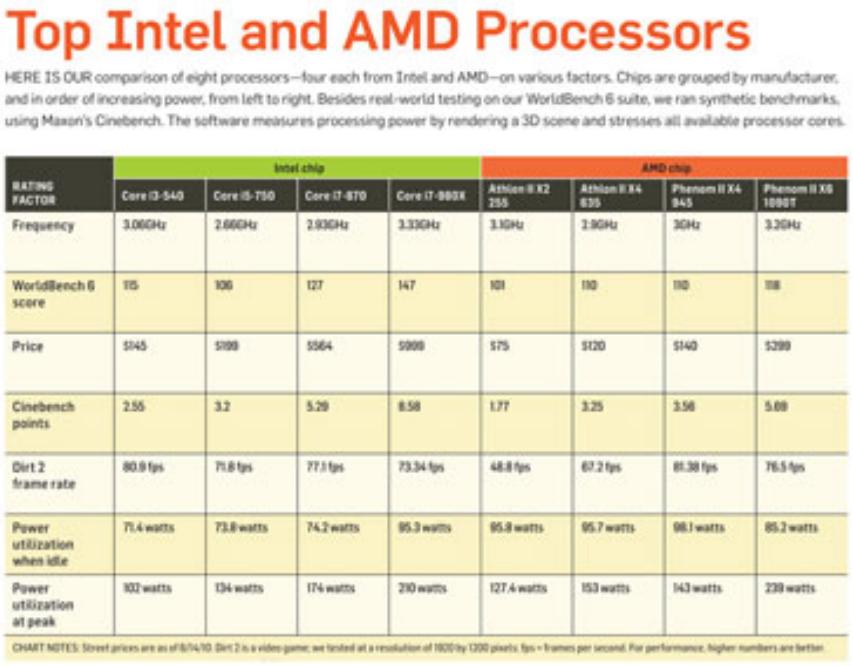

Top Intel and AMD Processors

HERE IS OUR comparison of eight processors—four each from Intel and AMD—on various factors. Chips are grouped by manufacturer, and in order of increasing power, from left to right. Besides real-world testing on our WorldBench 6 suite, we ran synthetic benchmarks, using Maxon's Cinebench. The software measures processing power by rendering a 3D scene and stresses all available processor cores.

RATING FACTOR	Intel chip				AMD chip			
	Core i3-540	Core i5-750	Core i7-870	Core i7-980X	Athlon II X2 255	Athlon II X4 635	Phenom II X4 945	Phenom II X6 1090T
Frequency	3.06GHz	2.66GHz	2.93GHz	3.33GHz	3.1GHz	2.9GHz	3GHz	3.2GHz
WorldBench 6 score	115	106	127	147	101	110	110	118
Price	$145	$199	$564	$999	$75	$120	$140	$289
Cinebench points	2.55	3.2	5.29	8.58	1.77	3.25	3.56	5.69
Dirt 2 frame rate	80.9 fps	71.8 fps	77.1 fps	73.34 fps	48.8 fps	67.2 fps	81.38 fps	76.5 fps
Power utilization when idle	71.4 watts	73.8 watts	74.2 watts	85.3 watts	85.8 watts	85.7 watts	98.1 watts	85.2 watts
Power utilization at peak	102 watts	134 watts	174 watts	210 watts	127.4 watts	153 watts	143 watts	238 watts

CHART NOTES: Street prices are as of 8/14/10. Dirt 2 is a video game; we tested at a resolution of 1920 by 1200 pixels. fps = frames per second. For performance, higher numbers are better.

Parameter tables of processors represent best for each product line of Intel and AMD

With the top 8 processors on the market by each product line from Intel and AMD through a rigorous test that PCWorld magazine tested, which will help you choose the most suitable CPU. . The test was rated according to WorldBench 6 scores and arranged in order from high to high, operating on a 1920x1200 pixel resolution screen.

Intel Core i7-980X (147 review points)

At the reference price of 999USD, the operating speed is 3.33GHz and can be overclocked to 3.6GHz, Core i7-980X is a high-end product line with 6 physical cores but can run with 12 streams thanks to super technology threaded (HT). 12MB L3 cache.

Designed with 32 nm technology, 980X running LGA 1366 socket is fully compatible with the current X58 motherboard generation, based on the architecture of Intel's Quickpath Interconnect (QPI) which replaces the existing FSB design. used for Core 2 and earlier chips. QPI for faster bandwidth to better support communication between motherboards and system components with CPU

Intel Core i7-870 (127 rating points)

Running at 2.93GHz and can overclock to 3.6GHz with a reference price of US $ 564. Compared to Core i7-980X, 870 reduced performance by about 14% because it only carries 8MB of L3 cache.

In addition, the product is manufactured on 45 nm technology (space size between transistors). Intel's mid-range products also use QPI architecture.

AMD Phenom II X6 1090T (118 review points)

With an integrated 6-core design, AMD's Phenom II X6 1090T processor has a $ 299 reference price, the code name Thuban is manufactured on 45 nm technology, runs at 3.2GHz and can be overclocked to 3.6GHz via AMD's Turbo Core technology, comparable to Intel's Turbo Boost technology. The X6 1090T has 6MB of L3 cache and lost Intel-980X performance by up to 20%.

Turning to a Vietnamese side of performance, the highlight of 1090T X6 is compatible with both AM3 or AM2 + sockets (after upgrading the BIOS), which means you can take advantage of existing motherboards that support socket AM2 + but No need to spend money to buy a more advanced motherboard.

Intel Core i3-540 (115 review points)

As a member of the Clarkdale line, the Core i3-540 offers 3.06GHz operating speed. This Intel product line appeared about 4 months after the release of Lynnfield (family of Core i7-870), Clarkdale based on 32 nm manufacturing process. Core i3-540 has a reference price of 145 USD, lack of Turbo Boost feature so it cannot be faster than 3.06GHz, instead users can only use overclocking themselves.

Intel Core i3-540 processor

The Core i3-540 is aimed at the mid-end product market, especially with a pre-packaged GPU core inside the CPU allowing it to improve performance as well as integrated graphics, reducing the cost of buying a motherboard as well. like graphics card. You can choose motherboard products using Q57, H55, H57 chipsets to replace P55.

AMD Phenom II X4 945 (110 review points)

AMD's X4 945 runs at 3.0GHz and is compatible with AM3 socket, the benefit of this design is to allow it to support DDR3 Ram memory.

The processor works with four physical cores priced at $ 140 with many similarities to the six-core Phenom II X6 1090T processor. Along with the support of 6MB L3 cache memory, support of 2GHz HyperTransport architecture (streaming) but no automatic overclocking capability like Phenom II X6 1090T. In addition, with the test with Cinebench, X6 1090T X4 945 to 60% faster.

AMD Athlon II X4 635 (110 review points)

AMD Athlon II X4 635 runs at 2.9GHz with the same functions as the X4 945. Both are built on socket AM3 design with minor differences in clock speed.

The processor has a selling price of US $ 120 with an overall score equivalent to the X4 945 in the WorldBench 6 test, but with the Cinebench test results, the X4 945 expresses strength when faster than its junior. 9.5%.

Intel Core i5-750 (106 rating points)

As a member of the Lynnfield family, Intel's quad-core (4-core) processor runs at 2.66GHz with features like the Core i7-870 (priced at $ 199) but has the main difference. is not supported by Hyper-Threading Technology (HT), which means it only works with the power of 4 physical cores, not raised to 8 cores (adding 4 'virtual cores' thanks to HyperThreading)

Compared to the i7-870, this processor scored 17% lower than WorldBench 6, nearly double the difference between the 9% working speed. With Turbo Boost, the i5-750 can be boosted up to 3.2GHz. With the multi-threaded Cinebench test, the i5-750 provides a 40 percent lower score than the i7-870.

Core i5-750 only unfortunately lacks HT hyperthreading technology

In addition to supporting dual-channel technology, the processor works on socket 1156 with the ability to support PCI Express control channels that allow the graphics card to run at full power of PCI-E x16 or possibly split into 2 x8 connections without affecting performance unless you plan to run a pair of parallel graphics cards.

AMD Athlon II X2 255 (101 review points)

With a reference price of 75USD, this dual-core processor is clocked at 3.1GHz and does not come with L3 Cache memory. The cache of X2 255 is divided equally for each core of 1MB. The processor is designed with 45 nm technology, socket AM3 allows backward compatibility with AM3 or AM2 + motherboards to help save costs.

Compared to the Phenom II X6 1090T, the X2 255 is only 15% slower on general tracks but 70% slower on the Cinebench test, which focuses on multi-core utilization.