



COMPONENTS



INTEL Core 2 Duo E6700



Little had changed in processor design in the past couple of years. Dual-core processors arrived, but these simply took two current processor cores and put them on a single chip. With Intel's Core 2 Duo E6700, however, Intel didn't just create a new dual-core processor – it completely redesigned its architecture. Gone are the bad old days of the Pentium 4, where faster chips meant higher clock speeds and more heat. Nowadays, efficiency is more important. Intel looked at its mobile range, where it had learnt how to make low-power, cool and fast processors, and applied the same concept to the desktop.

The Core 2 Duo is based on a design that does more work per clock cycle than the Pentium 4. The highest-speed Core 2 Duo, the Core 2 Extreme X6800, has a clock speed of 2.93GHz, which is almost 1GHz slower than the fastest Pentium 4. Intel redesigned the processor's pipeline so that on average it can perform more instructions per clock cycle than the Pentium 4. The pipeline was reduced from 31 stages to just 14. This helps the chip cope with a feature of software known as branching. A branch is a point in an application where two outcomes are possible. Processors see these coming and perform branch prediction to guess which way the result will go. If the processor gets it right, it can continue preparing work in advance; when it gets it wrong, the pipeline has to be cleared and restarted. As the Core 2 Duo's pipeline is shorter, clearing and restarting is much faster.

Intel has often been criticised for not integrating its memory controller on the processor, as AMD has done.

Intel hasn't done this with Core 2, but it has given the E6700 4MB of smart cache as a buffer. The processor needs to access slow memory less frequently, which improves performance no end. This cache is also flexible in the way it's shared: if only one of the two cores is in use, that core gets the whole cache to itself. The E6700 has a thermal design power (TDP) of 65W, where TDP is the amount of heat that must be dissipated; the Pentium 4 960 has a TDP of 130W. Performance stunned us. The £360 E6700 was quicker in our benchmarks than AMD's £536 FX-62.

Intel has re-established itself as the leading processor maker. The E6700 is everything a processor should be: excellent value, cool and incredibly quick.

PROCESSOR Two cores running at 2.66GHz, LGA775, 267MHz external bus, 4MB L2 cache PART CODE BX805576700 LATEST PRICE £346 inc VAT from www.ebuyer.com DETAILS www.intel.com FULL REVIEW Oct 2006

EXPERT'S REPORT

Picking a winner for our overall Best Component award was a no-brainer. Intel's Core 2 Duo processor is innovative, affordable and extremely quick, too.

Choosing our other award winners wasn't so easy. The components section is varied, with a range of products that serve very different needs. After lengthy discussions, we finally decided what we were looking for: a graphics card that's good enough for gamers but won't have you paying through the nose; a case or barebones system in which to build an affordable PC; and a general-purpose motherboard that supports all the latest mainstream technologies. The three products on the right fit the bill and deserve recognition.

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POWERCOLOR Radeon X1900 XT

PowerColor's Radeon X1900 XT is a truly great graphics card. It may not be cheap, but it's got all the power you'll need. Based on ATI's Radeon X1900 XT chipset, it has a huge 48 pixel pipelines and a 625MHz core. Its 512MB of GDDR3 memory certainly helps with large textures and high resolutions.

It flew through our games tests at a resolution of 1,280x1,024 with 4x FSAA turned on. If you have a 17" or 19" monitor, you'll be able to run games at its native resolution. It also runs in lower detail at 1,600x1,200.

Considering the performance you get for your money, this card is great value.

For playing games, this is the clear graphics card of the year.



GRAPHICS CARD ATI Radeon X1900XT chipset, 512MB GDDR3 RAM, PCI Express x16 interface PART CODE X1900XT 512MB LATEST PRICE £260 inc VAT from www.aria.co.uk DETAILS www.powercolor.com FULL REVIEW Sep 2006



ANTEC P150

Every part of Antec's attractive P150 silent PC case has been designed to be quiet. It doesn't rattle, it has acoustic insulation and ships with a silent 120mm fan with speed control.

You can even mount your hard disks between rubber bands to absorb noise-generating vibrations. With Antec's silent Neo HE 430W power supply included, the P150 is great value. We built a PC inside it and were amazed by the results. It was whisper-quiet from the start, and we didn't have to replace any components with quieter ones.

For silent computing without any hassle, Antec's P150 is a brilliant choice and richly deserves its award.



SILENT PC CASE ATX case, 120mm fan, two USB2, one FireWire, two audio ports, two 5¼" drive bays, one external 3½" drive bay, four internal 3½" drive bays PART CODE 0761345-019151-0 LATEST PRICE £100 inc VAT from www.morecomputers.com DETAILS www.antec.com FULL REVIEW Mar 2006



ECS 945G-M3

ECS's 945G-M3 motherboard is great value. The microATX board fits in a small case and is Viiv-compliant so it's ideal for use with Windows XP Media Center Edition.

This small board has plenty to offer, including two PCI, one PCI-E x1 and one PCI-E x16 slots. With onboard graphics and HD 7.1 audio, it has everything you need to build a PC. The 945G-M3 supports all Intel LGA775 processors, bar the Core 2 Duo. This is a shame, but the older processors are still good and their prices are falling.

Performance was excellent in our tests. If you want to build a PC or media centre on a budget, you'll be hard pressed to find a better motherboard.



MOTHERBOARD Intel 945G chipset, supports Intel LGA775 processors, two PCI, one PCI-E x1, one PCI-E x16, two DIMM slots, 10/100 LAN, four SATA, four USB2 PART CODE 1434-4120 LATEST PRICE £55 inc VAT from www.pnextday.co.uk DETAILS www.ecs.com.tw FULL REVIEW Jul 2006