



# Power packs



**The chips are down as AMD and Intel go head to head in this confrontation between new K6 and Celeron 300MHz chips. These ten top PCs offer a fair amount of power for a fair price.**

**T**he processor wars have reached new heights with the entry of AMD's K6-2 3D and Intel's 300MHz Celeron processors — both of which are aimed at the sub-£1000 market. In our August PC group test, AMD made its presence felt in the budget market with the attractively priced K6 266MHz processor. In fact, a system powered by an AMD chip won our Editor's Choice award against stiff competition from Intel and Cyrix.

**AMD's new product is a little different** from its previous x86 processors. For the first time AMD has managed to steal a march on Intel with the introduction of the K6-2 300MHz processor, which has new instructions to help accelerate 3D functions in CAD applications and games. The downside is that, just like Intel's MMX instructions, the applications must be specifically written to take advantage of the 3D Now! instruction set. Moreover, the drivers of the various graphics cards need to be rewritten to take advantage of the processor's new capabilities. At the time of going to press, in our group test only video cards based on the nVidia's Riva 128 chipset had fully optimised drivers for the K6-2 3D. However, other graphics board manufacturers, including S3, ATI and Matrox, have promised to deliver compatible drivers in the near future.

In sharp contrast to the K6-2 3D, industry reception to Intel's low-cost Celeron processor has at best been mixed. The Celeron faced a barrage of criticism for its lack of on-chip cache, which meant a considerable decrease in performance. Our previous tests seemed to prove this claim, with the comparably priced AMD systems coming out well ahead. Perhaps stung by the adverse reception accorded to the Celeron, Intel has brought forward the launch of its next processor in the Celeron series, codenamed Mendocino. This will have some cache and is expected to perform better than its predecessor. For a full review of the first of these systems, see our Reviews section, starting on page 78.

**For this test we have specified** systems aimed at mid-range users who have an eye for a bargain but also want a reasonable amount of power. So we asked for 64Mb RAM, at least a 4Gb hard drive, 17in monitor, sound card, speakers and a 4Mb video card.

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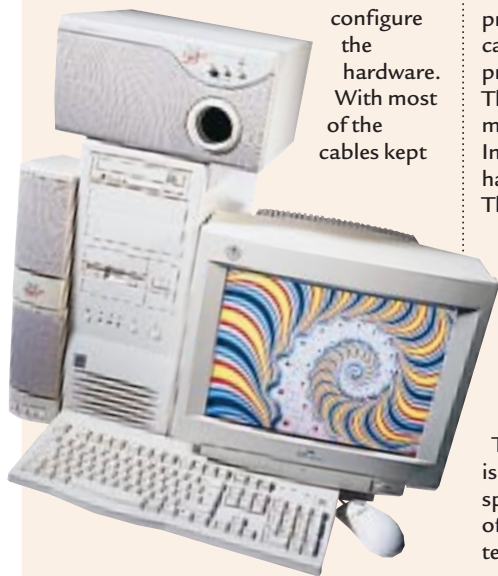
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*PCs tested and reviewed by Ajith Ram.*

## Actinet Netrunner

**Sporting a 300MHz** Celeron processor, the Actinet Netrunner is impeccably configured. The Netrunner is one of the few systems not to come with a large number of programs running in the background. And this tidy software installation is

complimented by the effort taken to configure the hardware. With most of the cables kept



well out of the way, the internal components are easy to reach for upgrading. The ATX case is well ventilated.

**Like the Mertec** Home Media, the Actinet system is immensely upgradeable. Built on the foundation of an Abit BX motherboard, the Netrunner can easily hold a faster processor from Intel or Cyrix. In fact, it can house many of the upcoming processors which go beyond 450MHz. The 64Mb RAM comes in a single module, leaving three DIMM slots free. In addition to the four free PCI slots, it has one 3.5in and two 5.25in bays free. The Abit motherboard is one of the best choices for compulsive overclockers. It offers the option of changing your processor speed through the CPU SoftMenu in the BIOS, eliminating the need to open up the computer. However, proper precautions must be taken before attempting overclocking. The multimedia side of the Netrunner is delivered by an AWE 64 sound card, speakers and sub-woofer. Unlike some of the barebone systems in our group test, the Netrunner also has a decent

software bundle which includes Lotus SmartSuite, IBM Simply Speaking and a multimedia bundle including Corel Draw.

The signal produced by an Intel i740 graphics card is reproduced well displayed by the 17in ADI 5GT monitor, which supports a maximum resolution of 1600x1200 at 75Hz.

### PCW DETAILS

**Price** £1267.62 (£1079 ex VAT)

**Contact** Actinet 01952 270703

[www.actinet.co.uk](http://www.actinet.co.uk)

**Good Points** Excellent construction, easily upgradeable.

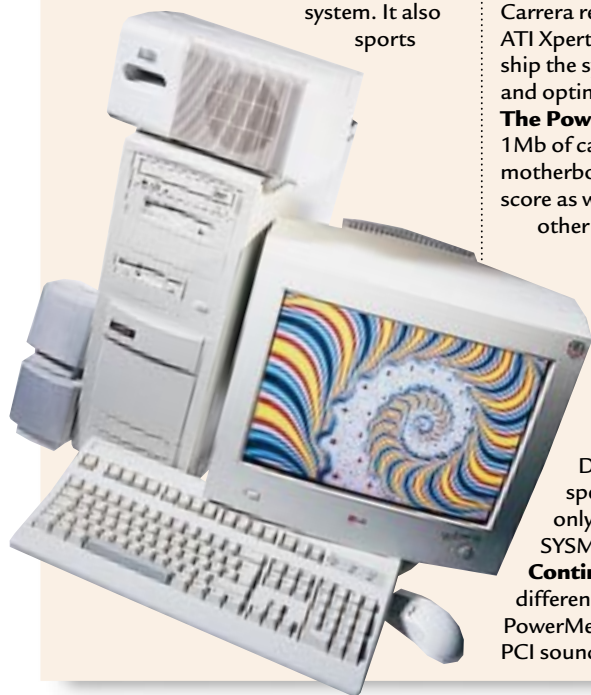
**Bad Points** Mediocre performance.

**Conclusion** A well-constructed system let down by an average performance.

<b>Build Quality</b>	★★★★★
<b>Performance</b>	★★★
<b>Value for Money</b>	★★★★
<b>Overall Rating</b>	★★★★

## Carrera PowerMedia K6-2.300

**The PowerMedia** was the second system in our group test to come with a DVD ROM drive. The Panasonic drive is not the only unique component in the system. It also sports



Matrox's latest 2D/3D graphics card, the Millennium G200.

Unfortunately the optimised Matrox drivers for the K6-2 processor were not available, and so in the review machine Carrera replaced the Matrox with an ATI Xpert@Play card. Carrera plans to ship the system with the Matrox card and optimised drivers.

**The PowerMedia** also comes with 1Mb of cache on the Socket 7 motherboard. However, it failed to score as well as the Mesh, the only other system with 1Mb of L2 cache.

This may have been because, just as on the KT Star 3D Power, the Carrera runs numerous applications, including Lotus SmartSuite, in the background, which seriously depletes system resources.

Despite its impressive specifications, the PowerMedia only achieved an average SYSMark score of 296.

**Continuing the trend** of being different from the rest, the PowerMedia comes with a SonicStorm PCI sound card which was powerful

enough to handle the output from the DVD. But, like the Mertec system, the speaker quality is less than ideal.

**One truly impressive feature** of the Carrera system is the LG monitor. The controls are easy to access and colour reproduction is exceptionally good. Able to handle a resolution of 1024x768 at 75Hz, its output was among the best in our group test.

### PCW DETAILS

**Price** £1291.33 (£1099 ex VAT)

**Contact** Carrera 0171 830 0486

[www.carrera.co.uk](http://www.carrera.co.uk)

**Good Points** Excellent monitor, powerful graphics card, well-built system.

**Bad Points** Poor software installation.

**Conclusion** A potentially powerful system hampered by poor configuration.

<b>Build Quality</b>	★★★★★
<b>Performance</b>	★★★★
<b>Value for Money</b>	★★★★
<b>Overall Rating</b>	★★★★



## POWER PACKS...

## Dabs Direct CE300

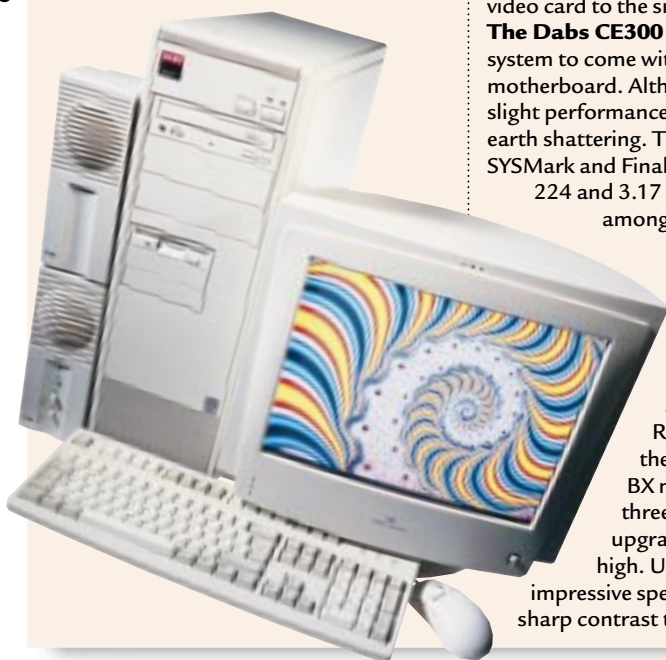
The first thing we noticed about the Dabs system built around the Celeron processor was its display — there was none. We tracked down the source of the problem to a loose-fitting ATI

Xpert@Play AGP card. We found that the AGP connector was a little too small for the slot and had a tendency to come loose. Other manufacturers in our group test avoided this problem by anchoring the video card to the side of the ATX case.

The Dabs CE300 is the only Celeron system to come with cache on the motherboard. Although it provided a slight performance increase, it was not earth shattering. That said, the SYSMark and Final Reality scores of 224 and 3.17 are the highest among the Celeron systems.

The 64Mb SDRAM comes in a single module, leaving two slots free for a maximum of 384Mb unbuffered RAM. Moreover, since the Dabs CE300 has a BX motherboard and three free PCI slots, the upgrade potential is very high. Unfortunately, these

impressive specifications are in sharp contrast to the shoddy



construction. In addition to the loose video card, the cables hang loose, making access difficult.

The 17in ADI 5P monitor is able to support a maximum refresh rate of 85Hz at a resolution of 1024x768. Its display is not quite as sharp as those on the ADI monitors that come with the Mesh and Actinet systems.

## PCW DETAILS

**Price** £1056.33 (£899 ex VAT)

**Contact** Dabs Direct 0800 558866

**Good Points** Good components, fastest Celeron performance.

**Bad Points** Poor construction, mediocre speakers.

**Conclusion** A well-specified system undermined by poor build quality.

<b>Build Quality</b>	★★
<b>Performance</b>	★★★★
<b>Value for Money</b>	★★★★
<b>Overall Rating</b>	★★★★

## Elonex MCX-6300AX

Elonex replaced the original AMD K6-2 machine it gave us, the PT-6300, with its new MCX-6300AX. The difference between the two was staggering. The MCX-6300AX is built around a MicroStar motherboard which includes both

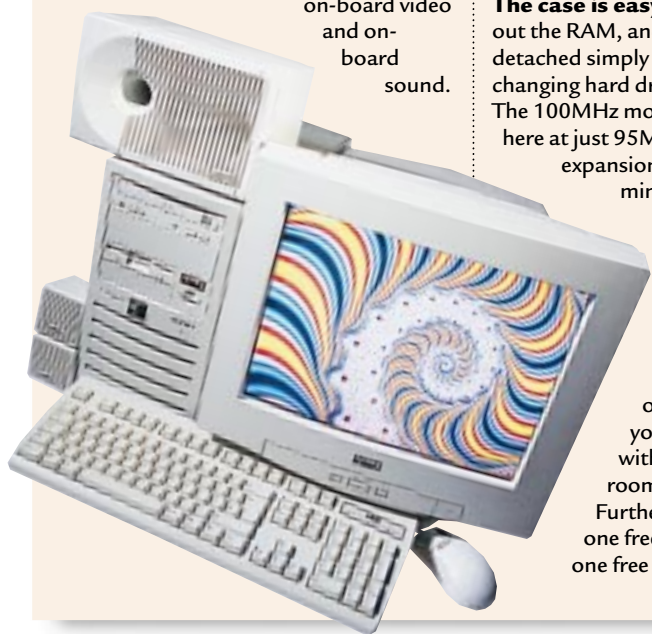
on-board video and on-board sound.

The graphics chip is an ATI 3D Rage Pro on the AGP bus with 4Mb of on-board RAM. The sound comes from a SonicStorm chip on the PCI bus. All the other ports come straight off the motherboard, making the inside of the case one of the cleanest we have seen.

The case is easy to dismantle. Take out the RAM, and the 3.5in bays can be detached simply by undoing one clip: changing hard drives is a breeze. The 100MHz motherboard, running here at just 95MHz, means that

expansion slots are kept to a minimum, with two PCI-only slots and one shared PCI/ISA slot, and one PCI slot filled with a PCI modem. If your habit is to fill your machine so that it is overflowing with cards, you might need a board with more expansion room than this.

Furthermore, there is only one free DIMM slot, and just one free 5.25in bay.



Elonex was the only company to provide a monitor under the company's own name, but this did not translate into a better display.

Although sharp at a resolution of 1024x768, the controls are difficult to master and the maximum refresh rate of 85Hz is not as high as other monitors here.

## PCW DETAILS

**Price** £845 (£719.15 ex VAT)

**Contact** Elonex 0181 452 4444

[www.elonex.co.uk](http://www.elonex.co.uk)

**Good Points** Compact and well built.

**Bad Points** Little room for upgrading.

**Conclusion** Good price and configuration, but will date quickly.

<b>Build Quality</b>	★★★★
<b>Performance</b>	★★★★
<b>Value for Money</b>	★★★★
<b>Overall Rating</b>	★★★★

## KT Star 3D Power



**Despite its impressive title**, the KT system only managed an average performance. Equipped with AMD's latest processor, the K6-2, the KT Star 3D Power achieved a mediocre score of 288 in our SYSMark test compared to the other K6-2 machines. Its Final Reality figures were equally unimpressive.

Perhaps this average performance was partly due to the ATI All-In-Wonder Pro, which has a built-in TV tuner but no fully optimised drivers for the K6-2. There should be a considerable improvement in performance once ATI's optimised drivers are installed in the system. Another factor could be the large number of applications that run in the background at start-up, including Lotus SmartSuite and Internet Explorer.

**The 3D Power** comes in an ATX case that is smaller and wider than most. The interior of the system is a forest of wires and cables, and a few of them — particularly the cables running from the CD-ROM and hard drive — are twisted together at the very top of the case. This prevents easy access to some of the internal components, particularly the graphics card and heat sink. One nice touch is that the Seagate Medalist hard drive is placed on a specially built plate, leaving an extra 3.5in bay free for upgrading. The Diamond Monster 3Dfx card included with the system might interest gamers as it is a second-generation

card based on the Voodoo chipset. Barring the presence of twisted wires, the system itself is well built and easily upgradeable. The CTX monitor, which is able to handle a resolution of 1024x1768 at 75Hz, provides bright images at all colour depths.

### PCW DETAILS

**Price** £1232.58 (£1049 ex VAT)

**Contact** KT Computers 0181 961 8897 [www.ktcomputers.co.uk](http://www.ktcomputers.co.uk)

**Good Points** Zip drive, dedicated 3D card, excellent monitor.

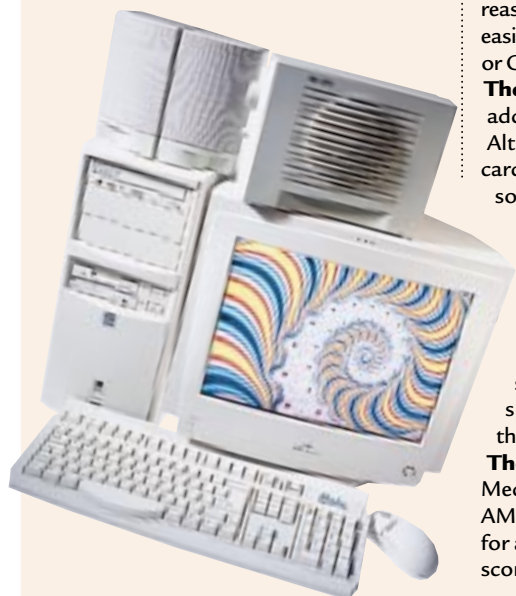
**Bad Points** Messy interior, unoptimised display drivers.

**Conclusion** A well-specified system let down slightly by poor construction and software installation.

<b>Build Quality</b>	★★★
<b>Performance</b>	★★★
<b>Value for Money</b>	★★★★
<b>Overall Rating</b>	★★★

## Mertec Home Media

Perhaps the tidiest system in our group test, the Mertec Home Media came with a Creative Labs DVD ROM rather than its ubiquitous CD relation. The first thing we noticed on opening this Celeron system was the amount of free space inside it: all the cables are neatly clipped together and taped



well away from the critical components. Out of the four DIMM slots available, only one was occupied, leaving ample room for upgrading. Even more impressive is the BX motherboard which houses the Celeron processor. Although the Celeron does not need a BX motherboard, its presence provides reassurance for the future. The buyer can easily upgrade to one of the faster Intel or Cyrix processors.

**The Iomega Zip** drive is a welcome addition to any multimedia system. Although the AWE 64 is an ISA sound card, it proved adequate for the DVD software bundled with the system.

However, as new DVD titles which make full use of Dolby AC-3 Surround Sound become available, the user might have to upgrade to a more robust PCI card. The multimedia side of this system is let down slightly by the speakers, which failed to reproduce the high quality of DVD sound.

**The performance of the Home Media** could not compete with any AMD system but was still impressive for a Celeron system. Its SYSMark score of 210 was only average, but its

Final Reality score was much better. The ADI Microscan monitor that came with the system is rather ungainly, with an extra projection on either side. It can handle a resolution of 1024x768 at 75Hz and the picture quality is sharp. The button and knob controls are easily accessible.



### PCW DETAILS

**Price** £1173.83 (£999 ex VAT)

**Contact** Mertec 01792 473700 [www.mertec.co.uk](http://www.mertec.co.uk)

**Good Points** Easily upgradeable, good multimedia performance.

**Bad Points** Average overall performance, poor speakers.

**Conclusion** A well-specified system at an enticing price.

<b>Build Quality</b>	★★★★★
<b>Performance</b>	★★★★
<b>Value for Money</b>	★★★★
<b>Overall Rating</b>	★★★★



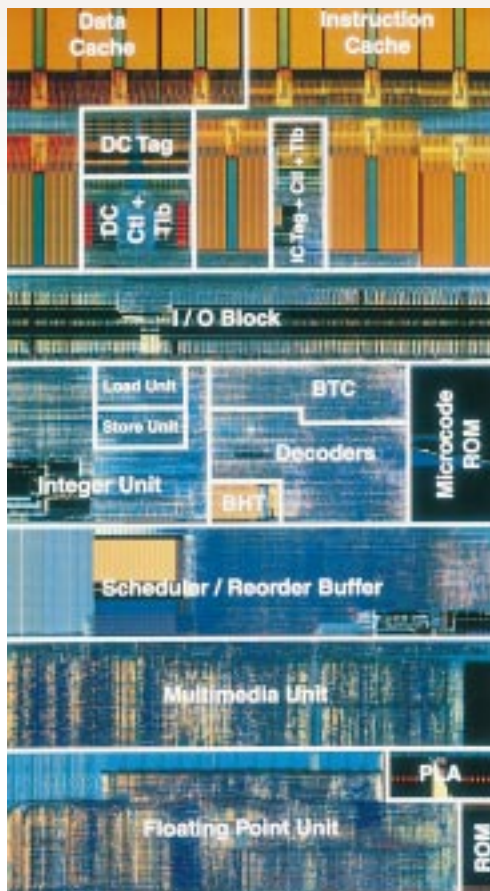
## Head to head: K6-2 3D Now! versus Celeron

A year ago, Intel stepped up its challenge to Advanced Micro Devices (AMD). In the months before, AMD had grabbed the market's attention with the release of the K6. Stung into action, Intel responded by releasing an even faster version of its recently launched Pentium II processor. However, this year, AMD can have its cake and eat it, as the company's new K6-2 processor takes the x86 architecture in a slightly new direction.

Although the original K6 was an excellent choice for the business user, its games and 3D performance fell below Pentium II standards as its floating-point unit (FPU) was less powerful. With the appearance of increasingly 3D-intensive games and applications, AMD would have been sidelined if it had not produced a processor to rectify this defect. The K6-2 is AMD's answer to the brute FPU power of the Pentium II. The K6-2 has 27 new instructions, called 3D Now!, which accelerate 3D functions. Hard-coded into the chip, 3D Now! exploits a technology called Single Instruction Multiple Data Execution (SIMD). This fetches and processes instructions in batches rather than dealing with them one at a time. Another instruction in 3D Now! allows reciprocal division. Processors are usually faster at multiplication sums than division. The K6-2 turns this handicap into an advantage by multiplying instead of dividing, using a reciprocal number. For example, instead of dividing a number by three, it multiplies the number by 0.333. This speeds up complex calculations considerably.



Despite the industry's heady reaction to the K6-2, the future of AMD is not assured. For one thing, Intel's answer to 3D Now! will make its debut early next year in the form of the Katmai Instruction Set (KNI). With a fully pipelined FPU, this chip will almost certainly be more powerful than the K6-2. Having learned from the MMX debacle, Intel is set to launch this processor with much more support from software developers.



Another, more serious threat to AMD is the possible obsolescence of Socket 7. While licensing Socket 7 technology from Intel, AMD gave up its right to move its processors to Slot 1 or Slot 2 motherboards. Although the bus speeds of Socket 7 motherboards have been raised to 100MHz, the possibility of a further increase appears bleak. AMD is preparing to produce its own proprietary motherboard technology which is incompatible with Intel's designs. It



remains to be seen whether the market will make this a winner like the K6-2. Intel's new low-cost processor series, the Celeron, had a most unfavourable debut. Although intended as a serious contender in the budget PC market that could compete with AMD and Cyrix, the Celeron had few features to make it stand out.

### *The K6-2 is AMD's answer to the brute FPU power of the Pentium II*

In fact, it came with one critical feature missing — the on-chip cache which produces tremendous improvement in speed. Intel even brought out a new chipset, the 440EX, to be used on motherboards housing the Celeron. It is essentially a cut-down version of the successful LX chipset, but does not support error-correction memory or multiple processors.

With BIOS support, a Celeron can be used on an older LX motherboard. Even older 440FX motherboards can support the processor if the manufacturer provides a flash BIOS update; however, this is much less likely.

Due to the lack of Level 2 cache, the Celeron's performance in business applications is comparable only to that of a Pentium MMX. However, in most current games which do not make use of the cache, it is an impressive performer because its FPU is the same as that of a Pentium II. The next processor in the Celeron series, codenamed Mendocino [Reviews, p78], will have 128Kb cache and debut at 333MHz.

**ABOVE** THE INTERNAL ARCHITECTURE OF THE K6-2 3D NOW!

**INSET** THE SOCKET 7 K6-2

**LEFT** THE CASELESS CELERON

## Mesh Elite K6 3D 300A

**Built on the backbone** of the AMD K6-2 processor, the Mesh Elite has a 40X CD-ROM drive. Previous labs tests of 24X and 32X CD-ROMs showed that they rarely approach their stated maximum speed — which is also the case with the 40X CD-ROM that came with this system. Its performance peaked around the speed of an

ordinary 24-speed drive — sufficient for most purposes. The most noticeable



feature of the Mesh system is its massive multimedia speakers and subwoofer. Coming with no less than six components, the Teac speakers are capable of reproducing true Dolby Surround sound. Unfortunately, the internal components are somewhat underspecified for the job. Although the AWE 64 sound card is an excellent choice for most PC users, it supports only simulated 3D positional audio and is not able to reproduce true Surround sound. So having six speakers and a remote control is something of an overkill.

**The interior of the system** is acceptably tidy, and most of the cables are kept well away from the critical components. Like the Carrera, the Mesh also has 1Mb of Level 2 cache on the motherboard. The high SYSMark score of 318 reflected this as well as the overall high-quality build of the system. The Mesh system is easily upgradeable as it has two DIMM and two PCI slots free. This, along with the tidy interior, should make the upgrading process painless. The Diamond Viper video card with



optimised drivers for the K6-2 produced excellent results at all colour depths. The ADI 5GT monitor, built on Trinitron technology, supports a high resolution of 1600x1200 at 75Hz. However, we found the controls a little difficult to master.

### PCW DETAILS

**Price** £1198.50 (£1020 ex VAT)

**Contact** Mesh 0181 208 2028

[www.meshplc.co.uk](http://www.meshplc.co.uk)

**Good Points** Excellent monitor, easily upgradeable, well built.

**Bad Points** No DVD to take advantage of the six multimedia speakers.

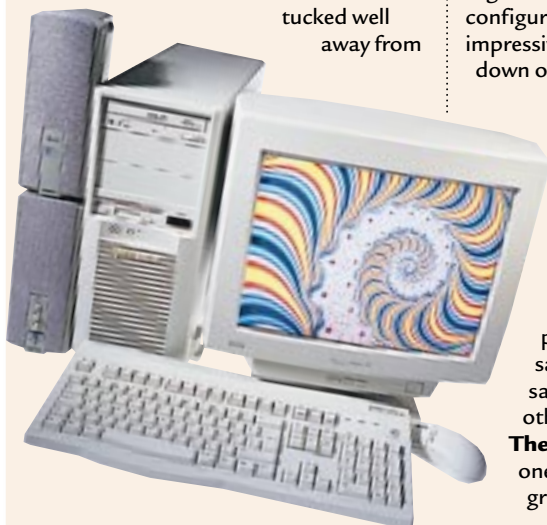
**Conclusion** A powerful system at an attractive price.

<b>Build Quality</b>	★★★★
<b>Performance</b>	★★★★
<b>Value for Money</b>	★★★
<b>Overall Rating</b>	★★★★

## Panrix Nitro 3D

**Panrix has a reputation** for manufacturing high-quality systems, and upholds that reputation with the Nitro 3D. One of the best constructed AMD systems in our group test, the Nitro 3D, like the Mertec and the Carrera, has an interior layout that is an upgrader's dream. The K6-2

processor sits on a Microstar Super Socket 7 100MHz system bus motherboard. The cables are tucked well away from



the critical components, and the components are arranged in such a way that there is enough room for easy access. The 64Mb RAM comes in a single module, leaving two slots free for upgrading. There are also three free bays.

**The Nitro 3D has a massive** Maxtor 7.5Gb hard drive which spins at 7700 rpm. These impressive specifications, together with the excellent software configuration, produced some very impressive results when tested, falling down only on the overall Final Reality marks, perhaps because the graphics card has only 4Mb of RAM rather than 8Mb. The display was provided by a Diamond Viper 330 video card built around nVidia's Riva 128 chipset. As the Viper has optimised drivers for the K6-2 processor, it did not pose the same driver problems that we saw with some of the cards in other systems.

**The Orchid NuSound 3D** was one of the best sound cards in our group test. It is a PCI card which



produced quite impressive results through the pair of Yamaha speakers. The Iiyama 8617 17in monitor is one of the most popular models on the market. It produces clear pictures at a resolution of 1024x768 at 70Hz, and has controls that are easy to access and use.

### PCW DETAILS

**Price** £1173.83 (£999 ex VAT)

**Contact** Panrix 01132 444958

[www.panrix.com](http://www.panrix.com)

**Good Points** Good components, excellent build, easily upgradeable.

**Bad Points** Average overall performance.

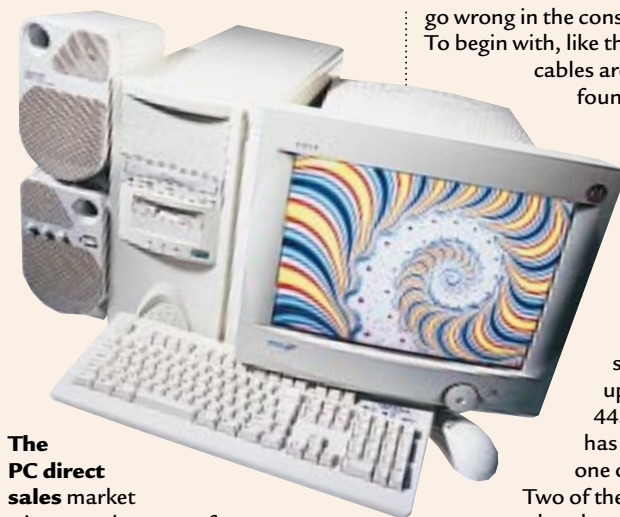
**Conclusion** A well-specified and constructed system at an attractive price.

<b>Build Quality</b>	★★★★★
<b>Performance</b>	★★★★
<b>Value for Money</b>	★★★★
<b>Overall Rating</b>	★★★★



## POWER PACKS...

## Protek Ultra



**The PC direct sales market** witnesses the entry of new contenders every day. With lower overheads, some of them are able to mount a strong challenge to the big players such as Dell and Gateway. Protek is one of these recent entrants. Unfortunately, the Protek Ultra, built around the Intel Celeron processor, has not made an auspicious start. Although easy to set up, its interior illustrates some of the things that can

go wrong in the construction of a PC. To begin with, like the KT system, the cables are a mess. We found the CD-ROM cable twisted over the heatsink, while the EIDE cable from the hard drive dangled close to it. The Ultra also has extremely limited scope for upgrading. The Intel 443EX motherboard has only two PCI slots, one other being shared.

Two of these slots were already occupied by the main graphics card and the 3Dfx board, leaving only one free slot. Similarly, only two DIMM slots were available, one of which was already occupied.

**The dedicated 3D graphics** Voodoo card is a first-generation card and not as powerful as the newer version that came with the KT system. The Ultra scored a disappointing 206 in our

SYSMark test and 2.90 in Final Reality. The ATI Xpert@Play graphics card produces clear images on the Mag Innovision XJ717 monitor. Although the monitor did not achieve outstanding results, it was able to handle a resolution of 1024x768 at 85Hz. The display is sharp and the controls are easy to use.

## PCW DETAILS

**Price** £997.58 (£849 ex VAT)

**Contact** Protek 0800 458 0533

**Good Points** Low price, large ATX case.

**Bad Points** Shoddy construction, poor performance, poor upgradeability options.

**Conclusion** Not recommended unless you're on a very tight budget.

<b>Build Quality</b>	★★
<b>Performance</b>	★★
<b>Value for Money</b>	★★★
<b>Overall Rating</b>	★★

## Roldec Pro 2

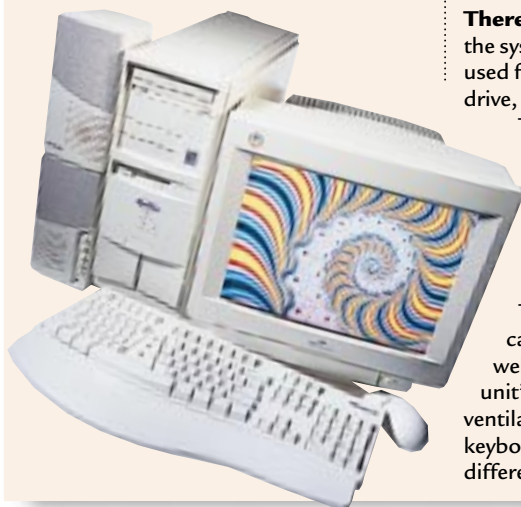
**Roldec's Pro 2 is built** around the Celeron processor which in turn resides on a BX motherboard. As a result, in common with the Mertec and Actinet's Netrunner systems, the Pro 2 is easily upgradeable, and this alone makes the system more appealing than many others. The motherboard comes with some useful connectors for the IDE and floppy cable, with clamps on both sides to ensure a safe

connection. It also has five PCI slots — two of which are occupied — and three DIMM slots. Like the Elonex system, the Pro 2 came with a PCI modem which offers only slight speed benefits over an ISA modem. The RAM came in a single DIMM module. Perhaps the most unusual component in this system is the Matrox Millennium G200 video card. There are, of course, no driver problems with the Intel-based Roldec system.

**There is an extra plastic tray** inside the system, which Roldec could have used for the Seagate Medalist hard drive, saving a valuable 3.5in bay.

The Pro 2 has a 32X Teac CD-ROM, and the sound is provided by an AWE 64 Value sound card. The Arowana speakers, despite their size, produced quite impressive results.

The Pro 2 comes in a large ATX case with most of the wires tucked well away. This, along with the unit's large size, provides adequate ventilation. The Microsoft ergonomic keyboard is another welcome difference from other systems.



**The ADI 5GT monitor**, which is identical to those with the Actinet and Mesh systems, was the best in the group test. Able to support high resolutions of up to 1600x1200 at 75Hz, it produces excellent images supported by the Matrox card.

## PCW DETAILS

**Price** £1060.375 (£895 ex VAT)

**Contact** Roldec 01902 456464

[www.roldec.com](http://www.roldec.com)

**Good Points** Good components and build, excellent speakers and monitor.

**Bad Points** Average overall performance, wasted PCI slot.

**Conclusion** A well-constructed system with a few wasted resources.

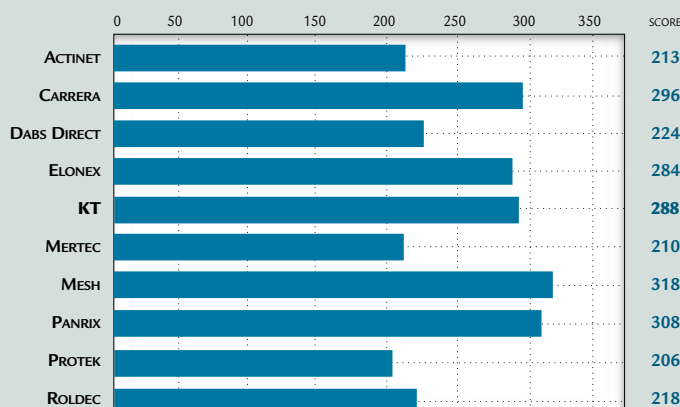
<b>Build Quality</b>	★★★★
<b>Performance</b>	★★★★
<b>Value for Money</b>	★★★★
<b>Overall Rating</b>	★★★★



# PCW Labs Report



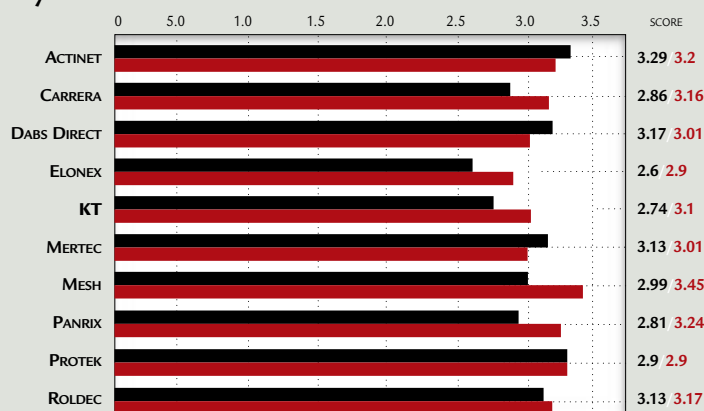
## SYSMark 95 scores



◀ The performance advantage of the K6-2 3D Now! is clear to see when running office applications, giving gains of around 20 percent

► Final Reality scores are closer-run between the K6-2s and the Celerons. Although the K6-2 has new 3D instructions, Final Reality is not written to take advantage of them. Equally, few graphics cards currently have drivers for the K6-2. The Celeron, meanwhile, has mighty FPU strength, giving it the edge when playing games

## Final Reality scores



Key: Black = overall scores Red = 3D scores

## How we did the tests



The SYSmark test we run on every PC in the group test is provided by BAPCo (Business Applications Performance Corporation). Its members include industry heavyweights like Intel, Compaq and IBM. The BAPCo SYSmark tests measure the speed of the computer running a series of eight common office applications: Microsoft Word 7, Lotus WordPro 96, Microsoft Excel 7, Borland Paradox 7, CorelDraw 6, Lotus Freelance Graphics 96, Microsoft Powerpoint 7, and Adobe Pagemaker 6. The test measures the time taken by the PC to perform a variety of tasks in each application, and each test is performed three times to ensure the results are consistent. The performance depends on a variety of factors; processor speed, RAM, graphics card and disk I/O. As the tests are based on business software packages, the result reflects of how the PC will perform in a real-world situation. The better the score, the longer the bar on the graph. Final Reality is a suite of graphical tests

designed to examine the processing power of the 3D accelerator on your graphics card, 2D image processing and AGP. It runs under Windows 95 and DirectX 5 and uses a 3D engine developed by Remedy. It supports Direct3D, a 3D standard designed by Microsoft, and looks at how the graphics accelerator handles the kind of data it would have to process when you are playing a game. Final Reality tests both the speed of the processor and visual appearance — how the card handles techniques like transparency, fogging, and alpha blending. It tests all these features at different points during the benchmark test, and performs the tests simultaneously, just as in a real game. The visual appearance factors are weighted in importance and combined with the overall processing speed to produce an overall mark. Again, the higher the score, the better the result. Final Reality can be downloaded from [www.vnu.co.uk](http://www.vnu.co.uk). Monitors are scrutinised using Display Mate for Windows, and tested at a number of resolutions and colour depths.

# Table of features



MANUFACTURER	ACTINET	CARRERA TECHNOLOGY	DABS DIRECT	ELONEX	KT COMPUTERS
MODEL NAME	NETRUNNER	POWER MEDIA K6-2 300	DABS CE 300	MCX-6300AX	KT STAR 3D POWER
Price (ex VAT)	£1079	£1099	£899	£719.15	£1049
Price (inc VAT)	£1267.62	£1291.33	£1056.33	£845	£1232.58
Telephone	01952 270 703	0171 830 0486	0800 558866	0181 452 4444	0181 961 8897
Fax	01952 270 090	0171 299 6600	0870 129 7000	0181 452 6422	0181 961 7498
Web Address	<a href="http://www.actinet.co.uk">www.actinet.co.uk</a>	<a href="http://www.carrera.co.uk">www.carrera.co.uk</a>	<a href="http://www.dabs.com">www.dabs.com</a>	<a href="http://www.elonex.co.uk">www.elonex.co.uk</a>	<a href="http://www.ktcomputers.co.uk">www.ktcomputers.co.uk</a>
Standard Warranty	1 yr On-site, 4 yrs RTB	1 yr Parts, 3 yrs lbr	1 yr On-site, 5 yrs lbr	RTB 1 yr	1 yr Parts, 5 yrs lbr, RTB
Warranty Options	3 yrs Onsite	Onsite Maintenance	24 hr Response OSM		1 week, 8 hr Repair
Technical Support	01952 270 708	0171 830 0386	0870 129 3350	0181 452 6666	0181 961 8897
Hardware Specs					
Processor	Intel Celeron 300MHz	AMD K6-2 300MHz	Intel Celeron 300MHz	AMD K6-2 300MHz	AMD K6-2 300MHz
RAM/Type/No of DIMMs	64Mb/SDRAM/1	64Mb/SDRAM/1	64Mb/SDRAM/1	64Mb/SDRAM/1	64Mb/SDRAM/1
Hard Disk	Seagate Medalist Pro	Maxtor Diamond Max	Seagate ST36530A	Fujitsu	Seagate Medalist Pro
Size/Interface	6.4Gb/UDMA	10 Gb Ultra EIDE	6.5 Gb/UDMA	8.4 Gb/UDMA	6.4 GB/UDMA
Motherboard Components					
Motherboard Manufacturer	Abit	EpoX	Supermicro	FIC	Microstar
Model/Chipset	i440BX	MVP3/i430TX	P6-58A 440BX	VA 503T	MS-5169/i440BX
L2 Cache	512Kb	1Mb	256Kb	512Kb	512Kb
Expansion and I/O					
No. of Free 3.5/5.25in Bays	1/2	1/2	2/2	2/1	0/2
AGP Slot	1	1	1	on-board	1
No of PCI/ISA/Shared Slots	4/3/1	3/2/1	4/3/1	2/0/1	3/2/1
No of USB/Serial/Parallel/PS2	2/2/1/2	2/2/1/2	2/2/1/1	2/2/1/1	2/2/1/2
Multimedia					
CD-ROM Manufacturer/Model	A-Open	ATISoft DVD ROM	Asus CD5340	Vuege 632A	Asus 34X
CD-ROM Speed/Interface	32x/IDE	24x/IDE	34x/IDE	32x/IDE	34x/IDE
Sound Card Manufacturer	Creative Labs	Videologic	Pine	Sonic Storm	Creative Labs
Sound Card Model	AWE64 Value	Sonic Storm PCI 3D	Schubert 32 PCI	PCI Sound	AWE64 Value
Speakers	Surf Sound	Altec Lansing ACS45	Labtec LCS-1020 ION	CSW100	Aiwa TS-CD20
Graphics Card	Intel i740	ATI Xpert@Play	ATI Xpert@Play AGP	ATI 3D Rage Pro	ATI All-in-Wonder Pro
RAM/Type	8Mb	4Mb/SGRAM	4Mb/SGRAM	4Mb/SGRAM	8Mb/SGRAM
Graphics Card Interface	AGP	AGP	AGP	AGP	AGP
Monitor/Model/Size	ADI 5GT 17in	LG 77T 17in	ADI 5P 17in	Elonex 17in	CTX 1792 SE 17in
Max Refresh Rate@1024x768	92Hz	75Hz	85Hz	85Hz	75Hz
Other Information					
Modem Speed	56K	56K	56K	56K	56K
Misc Hardware		Iomega Zip Drive			Diamond Monster II 8Mb
		+ 1 cartridge			Iomega Zip Drive
Other Extras	Lotus SmartSuite 97	MS Home	Lotus SmartSuite 97	Lotus SmartSuite 97	Lotus SmartSuite 97
	IBM Simply Speaking	Essentials 98	Dabs mm Bundle		World Cup 98
	Ultra pack software				F1



# Table of features



MANUFACTURER	MERTEC	MESH COMPUTERS	PANRIX	PROTEK EUROPE	ROLDEC SYSTEMS
MODEL NAME	HOME MEDIA	ELITE K6 3D 300A	NITRO 3D	ULTRA	PRO 2
Price (exVAT)	£999	£1020	£999	£849	£895
Price (inc VAT)	£1173.83	£1198.50	£1173.83	£997.58	£1,060.38
Telephone	01792 473700	0181 452 1111	01132 444958	0800 458 0533	01902 456464
Fax	01792 473887	0181 208 4493	01132 444 962	0800 458 0511	01902 452 592
Web Address	<a href="http://www.mertec.co.uk">www.mertec.co.uk</a>	<a href="http://www.meshplc.co.uk">www.meshplc.co.uk</a>	<a href="http://www.panrix.com">www.panrix.com</a>		<a href="http://www.roldec.com">www.roldec.com</a>
Standard Warranty	2 yr RTB Parts & lbr	2 yr RTB	1 yr Parts & lbr RTB	1 yr RTB	3 yr Std Warranty
Warranty Options	1 yr 24 hr Response	Lifetime Tel Support	24/12 Month OSW	4 yrs lbr only	2 yrs Parts & lbr
Technical Support	01792 473888	0181 208 2028	01132 444948	01884 822302	01902 456464
Hardware Specs					
Processor	Intel Celeron 300 MHz	AMD K6-2 300MHz	AMD K6-2 300MHz	Intel Celeron 300MHz	Intel Celeron 300MHz
RAM/Type/No of DIMMs	64Mb/SDRAM/1	64Mb/SDRAM/1	64Mb/SDRAM/1	64Mb/SDRAM/1	64Mb/SDRAM/1
Hard Disk	IBM	Seagate Medalist Pro	Maxtor 90750D6	Fujitsu	Seagate Medalist Pro
Size/Interface	6.4 Gb/UDMA	6.5 Gb Ultra ATA	7.5 Gb/UDMA	4.3 Gb/UDMA	4.5 Gb/UDMA
Motherboard Components					
Motherboard Manufacturer	Chaintech	EpoX EP/51MP3E-M	Microstar	QDI	Elitegroup
Model/Chipset	6BTM/440BX	VIA	MS5169 ALI	Excellent 1443EX	P6 BX/A440BX
L2 Cache	0Bb	1Mb	512Kb	0Kb	0Kb
Expansion and I/O					
No of Free 3.5/5.25in Bays	1/2	1/2	1/2	2/2	1/2
AGP Slot	1	1	1	1	1
No of PCI/ISA/Shared Slots	3/2/1	3/2/1	4/3/1	3/3/1	4/1/1
No of USB/Serial/Parallel/PS2	2/2/1/2	2/2/1/2	2/2/1/2	2/2/1/2	2/2/1/0
Multimedia					
CD-ROM Manufacturer/Model	Creative DVD	Asustek CD-5400	Asus CD-5400	Samsung SCR-3231	Teac
CD-ROM Speed/Interface	2x DVD, 20x CD/EIDE	40x/EIDE	40x/IDE	32x/IDE	32x/IDE
Sound Card Manufacturer	Creative Labs	Creative Labs	Orchid	Creative Labs	Creative Labs
Sound Card Model	AWE64 Value	AWE64 Value	NuSound 3D	AWE64 Value	AWE64 Value
Speakers	Labtec LCS2420	Teac PowerMax1000	Yamaha M20	Firestorm 240W	Arowana
Graphics Card	ATI Xpert 98	Diamond Viper 330	Diamond Viper 330	ATI Xpert@Play	Matrox Productiva G200
RAM/Type	8Mb/SGRAM	4Mb/SGRAM	4Mb/SGRAM	4Mb/SGRAM	8Mb/SGRAM
Graphics Card Interface	AGP	AGP	AGP	AGP	AGP
Monitor/Model/Size	ADI 5P 17in	ADI SGT 17in	Ilyama MF-8617E 17in	MAG XJ717 17in	ADI SGT 17in
Max Refresh Rate@1024x768	8Hz	92Hz	105Hz	85Hz	92Hz
Other Information					
Modem Speed	56K	56K	56K	56K	56K
Misc Hardware	DVD Decoder Card			Innovision 3Dfx Card	
	Iomega Zip Drive				
Other Extras	Lotus SmartSuite 97	Simply Speaking	Lotus SmartSuite 97		Microsoft Home
		Lotus SmartSuite 97			Essentials 98
		Serif 5			

# Editor's Choice

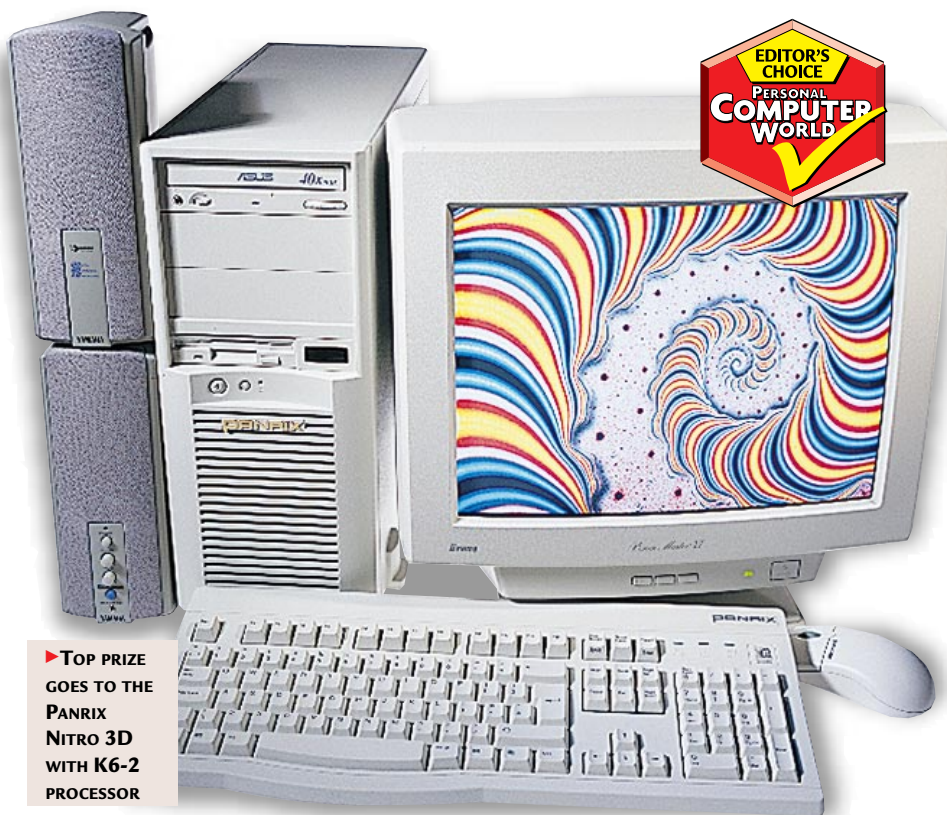
The winners of our awards offer **top price/performance** and solid upgradability.

In a market ruled by Intel, it is not very often that a processor comes up with much better performance at a comparable price. Considering the bad publicity that the Celeron received even before its launch, perhaps it was not entirely surprising that two AMD systems appeared in our awards list. However, one Celeron system receives our Highly Commended award. Our awards are based not only on performance; other equally important factors such as quality of construction, components

## What sets the Panrix Nitro 3D apart is its build quality

and price are considered too. As PC hardware is a fast-changing environment, today's high-performance system might be the slowest in the market in a few years' time. Therefore, there is little point in having a high-performance system if you cannot upgrade easily.

The Panrix Nitro 3D with the K6-2 processor, which wins our Editor's Choice award, is upgradable well beyond its current speed. Although the Nitro 3D is not as cheap as the Elonex PT-6300/AX or as high-performing as the Mesh K6 3D 300A, its build quality sets it apart. Bordering on the finicky, this system is an excellent choice for anyone who intends to add more components like a dedicated 3D graphics card or a video-capture board which takes advantage of the K6-2 processor's 3D Now! functions. Another merit of the system is its massive 7.5Gb Maxtor hard drive. A high-speed drive, it is gigantic enough to gobble the increasingly fat software that is hitting



► **TOP PRIZE GOES TO THE PANRIX NITRO 3D WITH K6-2 PROCESSOR**

the market. And the Diamond Viper video card was the only one in our group test that had optimised drivers for the K6-2 processor. In addition to all the appreciable features mentioned here, the Nitro 3D also had the best sound card in the group test.

## The Merteц Home Media

is the only Celeron system to win an award. Coming with a second-generation DVD drive, the Home Media, like the other two award winners, is easy to upgrade because it has a BX motherboard. This makes it compatible with faster processors like the Pentium II. The Creative Labs DVD is able to read DVDs and all varieties of CDs without any problem. There is no loss of image quality. The Merteц system is also exceptionally well built, making access to the internal components very easy. The Iomega Zip drive is useful for archiving data and



▲ **MERTEC'S HOME MEDIA SYSTEM**



▼ **MESH K6 3D 300A AMD SYSTEM**

transferring large multimedia files.

The Mesh K6 3D 300A is another well-built AMD system. Scorching ahead of the rest with a SYSMark score of 318, it was the fastest in the group, with a result comparable to that of a corresponding Pentium II. Mesh has equipped it with a six-speaker set that makes it a good choice for converting into a home theatre. It also has 1Mb of cache on the motherboard, which boosts performance, while its ADI 5GT monitor produced the best results in our tests.