





# Speed demons

The business user wary of breaking the budget on a flash computer, could do worse than these **PC powerhouses** at bargain prices, all sporting a Pentium III 550MHz processor.

The processor wars have been hotting up for some time now, with Intel's Pentium III, at 550MHz, running faster than any of its competitors. Launch prices were unbearably high, but following two price drops you can now find some bargains. So, we asked vendors to squeeze every last drop out of our tight pricing point when building these beefy powerhouses.

For £1299 ex VAT we asked for small office workstations with a 17in monitor, 128Mb memory, a minimum 10Gb hard disk and a minimum 16Mb graphics card, all built around a Pentium III 550MHz core.

Those vendors who were up to the challenge provided us with some remarkable kit; so good, in fact, that even the most spendthrift business user

would be proud to own it. But we still wanted more, expecting the systems to last for some time, with space for upgrading and, of course, speedy performance.

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• PCs tested and reviewed by Ian Robson

## Ratings

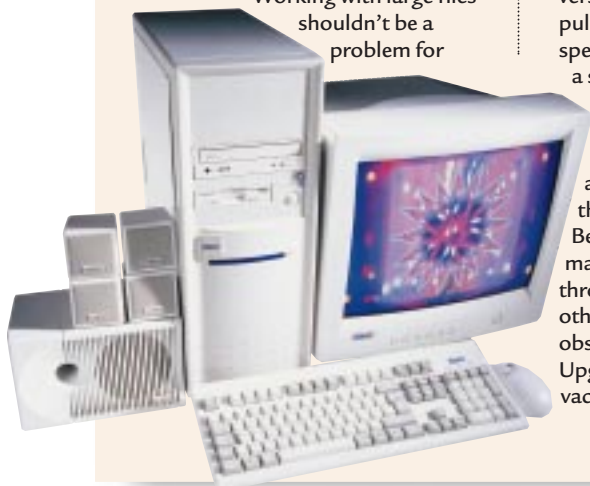
- ★★★★★ Highly recommended
- ★★★★ Great buy
- ★★★ Good buy
- ★★ Shop around
- ★ Not recommended



## Dan Dantum 550/CP

**Dan was seemingly unaffected** by our tight budget requirements, as it managed to build a system that exuded quality at every turn. As the only machine to sport the 32Mb ATI Rage Magnum as its graphics subsystem, it produced remarkable performance scores. This card has full 32-bit colour support in 2D and 3D and a large texture buffer, so should provide ample muscle even when running graphics applications.

Working with large files shouldn't be a problem for



the whopping 18Gb hard disk from Western Digital. This is a UDMA66 drive, but it cannot perform to its full potential as the Dantum's motherboard doesn't support the standard. An LS120 from Panasonic provides 120Mb of removable media or backup, and as it doubles as a floppy drive, a bay is saved. The sound system hasn't been neglected, with the crisp, vibrant tones of Creative Labs' Value version of its SoundBlaster Live pulsating through a 4.1 surround speaker system from PC Works — a setup that would tempt you to dabble in 3D video with sound. The Dantum's expert construction is immediately apparent from the single-thumbscrew access to the innards. Before you is a spacious layout made all the more appealing through tidy cable clippings and other design details that ensure obstructions are kept to a minimum. Upgrade options are via ample vacant bays and slots.



**This system is complemented perfectly** by a good-quality CTX monitor. Up to the preferred 17in working resolution of 1024x768, you'll be rewarded by sharp, rich images. Fully responsive OSD controls enable you to snap this image right up to the bezels in next to no time.

### PCW DETAILS

**Price** £1526.32 (£1299 ex VAT)

**Contact** Dan Technology  
0181 830 1100

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

**Good Points** Top performer.  
Good storage options.

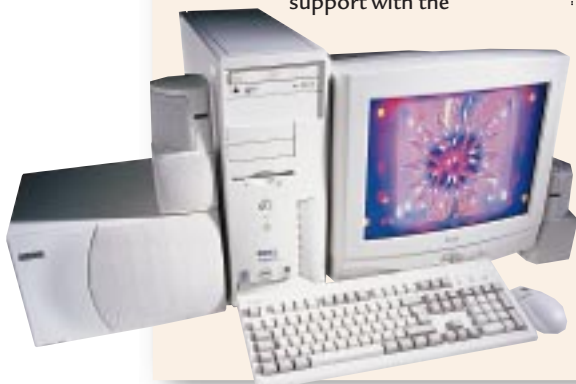
**Bad Points** No UDMA66 support for hard disk.

**Conclusion** A super-fast, quality workstation.

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

## Dell XPST550

**On paper, Dell's XPST550** surpassed our requirements and then added innovative touches to provide a masterful package. The Dell-specified motherboard from Intel introduces reliable diagnostics in the form of four LEDs on the back of the computer. If a malfunction is detected and the computer fails to boot, the indicators display a code that identifies the problem. You then refer to a troubleshooting guide which attempts to suggest ways to rectify the situation. As a last resort it will tell you to ring technical support with the



diagnostic code as ammunition. The graphics card, Diamond's TNT2-based Viper V770D, supports full 32-bit colour in 2D and 3D applications. Storage is courtesy of IBM's 13Gb hard disk, and for the upcoming, larger reference titles a third-generation DVD-ROM drive from Toshiba is supplied. Sound is reproduced via a good-quality A3D-based Turtle Beach PCI card and is pumped through some vibrant Altec Lansing speakers.

You can easily extend the life of this machine through upgrading. Loosen two screws and the side panel slides off seductively, revealing a tidy interior. Cables likely to get in the way sport pull handles so they can be moved to prevent damage. Heat from the processor is sucked out of the machine via a reversed fan on the power supply.

**Dell has chosen** a Nokia model for its rebadged monitor, a rather basic offering that makes no attempt to break any records. Although it manages to support a

resolution of 1600x1200, it only just holds it at an unbearable 60Hz refresh. At a workable 1024x768 colours are warm and bright although not as sharp as they could be even with the help of the intuitive OSD controls.



### PCW DETAILS

**Price** £1526.32 (£1299 ex VAT)

**Contact** Dell Computers  
0870 152 4850

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

**Good Points** 32-bit colour support for 3D work. Intuitive diagnostics system.

**Bad Points** The monitor is not the best on offer here.

**Conclusion** A reliable, high-performance package.

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

## Evesham Platinum Voodoo III

As with the other Voodoo3-based machines here, Evesham's system provided one of the highest performances. But, the Achilles' heel of the Voodoo3 is its lack of 32-bit colour support for 3D applications. This card only manages 16-bit plus a 4-bit enhanced emulation mode with the requisite patch installed. But if you can live without the more fully featured graphics cards offered, there are compensations. The 3000 model of Voodoo3 in this system has a TV-out

option so you can show presentations on a large screen. A DVD-ROM drive is supplied, which gives 32X reading, along with Dolby Digital Theatre sound to enhance the playing of DVD format reference titles and of course games and movies. This enhanced sound doesn't come across well, however, when played with the on-board SoundBlaster Value chip channelling through the underachieving ZiFi2 Pro speakers.

The whole case housing is removed after loosening three screws, revealing one PCI slot taken by the 56Kb/sec Diamond modem, and a further three PCI slots and two ISA slots for transferring legacy cards from an older system. There's a 13Gb Quantum hard disk and enough free bays to provide plenty of options for upgrading. Unsightly cables are wrapped up tightly along their lengths.

**The best thing** about the Mag DJ710 monitor is its dial-controlled OSD, which makes navigating the options and teasing the responsive

graphical indicators a breeze. Display quality is fine if you stick to the minimum 1024x768 required for spreadsheets and other large layouts. Above this, and you'll be suffering eyestrain caused by poor colour registration and low refresh.

### PCW DETAILS

**Price** £1526.32 (£1299 ex VAT)

**Contact** Evesham Micros  
0800 496 0800

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

**Good Points** Masses of upgrade options. Good performer.

**Bad Points** Restricted monitor. No 3D 32-bit colour support.

**Conclusion** A good machine, but short on inspiration.

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

## Gateway GP7-550

Contained within the cavernous depths of the GP7-550 is a mixture of something old and something new which all together adds up to a disappointing configuration. The reasonably sized 13Gb Western Digital hard disk makes use of the new UDMA66 protocol to bolster its burst transfer data rates. Although this standard is not supported by the motherboard, a PCI card from Promise Technologies provides the requisite interface.

However, we tested this machine in UDMA66 mode and then forced it

to run a second test in UDMA33 mode without the card, and saw no improvement running common office and multimedia applications. The expense incurred by this option would have been better spent bolstering the graphics subsystem. The STB Velocity 4400 can support 32-bit 3D work, but this is of little comfort considering that it contributed to this PC scoring the lowest performance results in the group.

To Gateway's credit, the case has colour-coded cable plugs on its backplate for the uninitiated, and three spare 5.25in front-accessed bays. Further exploration of the system's interior reveals masses of airflow space, with a ductwork arrangement directing the CPU's warm flow through the reversed power supply fans. There are plenty of internal bays and PCI slots for upgrading this initially reserved package. There's even an extra housing screwed to the base of the case for two extra hard drives, although this is not the area that will need immediate attention.

**The rebadged LG Electronics monitor** gives perfect colour registration and linearity at all the supported resolutions. Refresh drops off to an unworkable 60Hz above 1024x768, but you'll receive bright, warm colours through the one-finger dial-controlled OSD.

### PCW DETAILS

**Price** £1526.32 inc VAT  
(£1299 ex VAT)

**Contact** Gateway 0800 552000

[www.gateway.com/uk](http://www.gateway.com/uk)

**Good Points** Defines upgradeability. Quality monitor.

**Bad Points** Poor performer as a result of dated graphics system.

**Conclusion** A solid base to build upon, but lacks in too many areas for serious consideration.

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

## Hi-Grade Ultis PV3

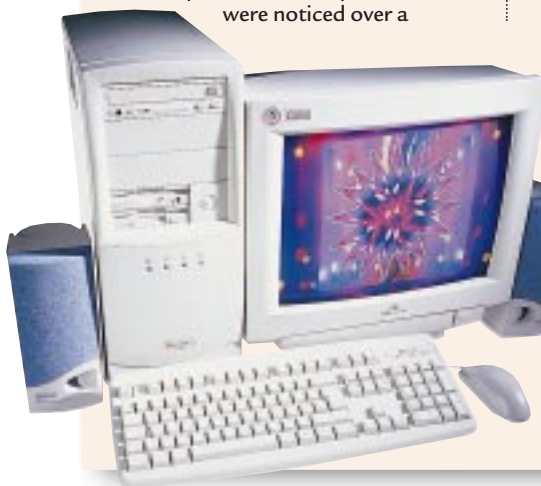
**The Ultis PV3 provided the best overall performance and had some particularly interesting components. The quality provisions begin with the whopping storage in the form of an 18Gb Western Digital hard disk. The UDMA66 protocol is supported by a PCI adapter from Promise Technologies as there's no support from the motherboard, and, as with the Gateway machine [p148] no performance improvements were noticed over a**

forced UDMA33 mode. For backup Hi-Grade has also included a 100Mb internal Zip drive.

Much of the performance can be accredited to the graphics system powered by STB's 16Mb Voodoo3 3000 with TV-out for big-screen presentations. However, this also means this setup is slightly flawed through lack of 32-bit 3D support. You may never need it, but with all this speed and storage at your disposal it would be a waste not to dabble in 3D animation rendering for which 32-bit colours are a must.

Entry to the system's interior is via the single-thumbscrew-removal of a sideplate. Upgrade options are not as varied as in some of the other offerings: with space for only one extra 3.5in and two 5.25in bay devices, and just one more PCI card, it's little comfort that all the ISA slots are free for any legacy cards.

**The ADI MicroScan 5G monitor,** on the other hand, will assuage your doubts about this system, as it's the only one that manages to



sustain acceptable refresh rates right up to a resolution of 1600x1200. The pushbutton controls are a welcome return to a method of optimising the screen without an OSD getting in the way of the display.

### PCW DETAILS

**Price** £1526.32 (£1299 ex VAT)

**Contact** Hi-Grade 0181 532 6115

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

**Good Points** Excellent monitor. Huge storage with removable backup media.

**Bad Points** Lack of 3D 32-bit colour support.

**Conclusion** Top performance backed up by masses of storage and a quality display helps to compensate for the lack of 3D 32-bit colour support.

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

## Mesh Elite PIII 550ST

**Mesh's reputation** for providing reliable systems built with expert care around quality components was reinforced with the 550ST, but still, there was room for improvement. With a storage provision of 10.1Gb from IBM, you'd be forgiven for thinking you'll be well looked after. But with serious usage and no form of removable media for backup storage included, a hard drive of this size could be under strain a year down the line. Graphics capability has been addressed with the

gamer's choice of card, the Voodoo3 3000, which provides formidable performance even if it does lack full 32-bit 3D support. Although 32-bit colour support is not essential in the average workstation, support for the full-colour range is a feather in the cap of the vendors supplying TNT2-based graphics systems.

Creative Labs supplied a third-generation DVD-ROM player, running at 5X when reading reference titles. However, the enhanced sound of this medium will not be reproduced at its highest quality by the SoundBlaster PCI 64 Value, played without panache through the bundled Yamaha speakers.

The six case screws proved overly restrictive, although as the internal construction is flawless, this is the only criticism of the design. Tidy, spacious and non-obstructive, the good-quality construction complements the upgrade opportunities available in the form of ample vacant bays and slots.

**The Philips monitor** provides an admirable display. The vibrant colours are bright and fresh with no noticeable drop in red/green/blue registration even at the highest supported resolution. A fully responsive OSD ensures that you can easily maintain your preferred display settings.

### PCW DETAILS

**Price** £1526.32 (£1299 ex VAT)

**Contact** Mesh 0181 208 4706

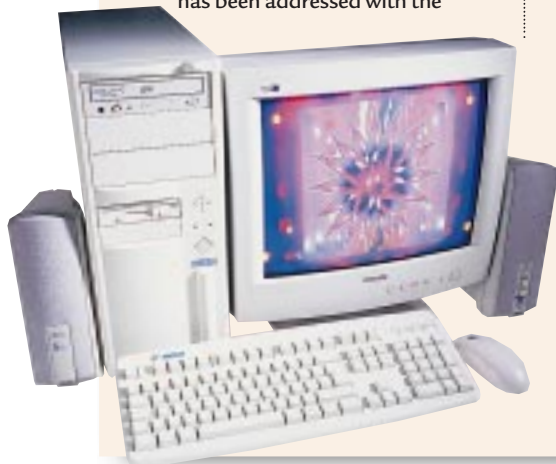
[www.meshplc.com](http://www.meshplc.com)

**Good Points** Expert internal construction. Quality monitor.

**Bad Points** Lack of 32-bit colour support for 3D work.

**Conclusion** Minimum specification, but expert construction.

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





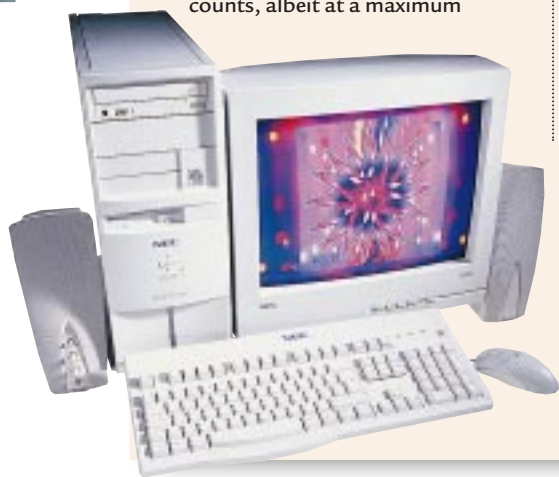
## NEC Direct Direction SE550B

**Although recording** one of the lowest overall performance scores and having a minimal specification, NEC's offering had a reassuringly high-class quality. Our minimum requirements for these machines may have proved NEC's biggest headache, as the Direction scraped through with just 10Gb of storage on a Maxtor hard drive and only a 16Mb graphics system. However, the Voodoo3 3000 graphics card manages excellent frame rate counts, albeit at a maximum

22-bit colours in 3D. The TV-out option offers some compensation, letting you show presentations on a large screen.

Other components are modest, too. The 32X CD-ROM drive will meet your needs, but only until DVD takes over as the distribution medium of choice. Sound is adequately addressed via a Creative Labs SoundBlaster PCI 64 Value card, this time sounding good when played through the Altec Lansing LS1030 speakers. The restrictive budget also took its toll on connectivity, with NEC Direct providing the only machine without a modem.

We were reassured by the choice of good-quality components from reputable manufacturers, and by the overall design and build. When you get into the machine, you'll be charmed by the intuitive construction. The cables have been tidily clipped so there are no obstructions to airflows or maintenance, and you'll have full access to all bays when adding devices.



**NEC's own-brand monitor**, the C700, doesn't make use of short-neck technology but is still shorter in depth than a typical 17in display. At the preferred 1024x768 resolution it gives a bright, warm image, although you're not encouraged to push the resolution above this as the refresh rate drops sharply. The OSD features responsive graphical-level meters.

### PCW DETAILS

**Price** £1526.32 (£1299 ex VAT)

**Contact** NEC Direct 0870 010 6324  
[www.necdirect-europe.com](http://www.necdirect-europe.com)

**Good Points** *Quality construction.*

**Bad Points** *No connectivity. Sparse specification.*

**Conclusion** *The configuration needs some improvement.*

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

## Panrix Fusion Ultra 550

**The Fusion Ultra 550 is a no-nonsense PC** with well known, name components. The Ultra's high performance, coming in a very close second to Hi-Grade's top score, is largely down to the Voodoo3-based graphics system. The 3000 model, as with all the cards in the Voodoo3 series, will not support 32-bit colours for 3D work, but if this isn't an issue for you, then you'll be rewarded with a TV-out option for big-screen presentations.

Storage is adequately addressed by a 13Gb IBM hard disk, and the AOpen DVD-ROM drive will ensure that you can take advantage of DVD reference releases and movies. For CD-ROM use you'll achieve a 32X maximum perimeter read speed.

Loosening a single thumbscrew allows access to the interior via a sidepanel that reveals a tidy yet cluttered arrangement. It isn't immediately apparent just what gives rise to the feeling of restriction, although the addition of a structural crossbar, which could prove a hindrance to any hands-on maintenance, doesn't help. However, even with a Creative Labs SoundBlaster 128 and a 56Kb/sec modem taking up two PCI slots, that still leaves two more PCI slots and three ISA slots for the addition of legacy cards. During setup, the Panrix PC was the only one that proved tricky, as although the connecting plugs did have identifying symbols stamped above them, they were extremely faint — hardly noticeable, in fact.



**Viewsonic's E771-2 flatscreen CRT monitor** gave an excellent picture. Extremely rich and bright colours were represented at the standard resolutions, although at 1280x1024 the refresh dropped to an unacceptable 60Hz. Registration was perfect, and the intuitive OSD controls ensured easy manipulation of the display.

### PCW DETAILS

**Price** £1526.32 (£1299 ex VAT)

**Contact** Panrix 0113 244 4958  
[www.panrix.com](http://www.panrix.com)

**Good Points** *Excellent display. Good performance.*

**Bad Points** *Lack of 32-bit colour support for 3D work.*

**Conclusion** *Impressive, but let down by a lack of attention to detail.*

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

## Tiny Home Entertainment 550 Plus

**Contained within** the cola-bottle-inspired exterior of the 550 Plus is a TNT2-based graphics subsystem manufactured under licence from NVidia by a Tiny contractor. Although not quality-checked by NVidia, the stringent initial reference design ensures that you receive a card comparable to the branded versions offered elsewhere, as is evident throughout the Tiny's performance.

The 550 Plus offers an 18Gb UDMA66-supporting hard disk from Western Digital. Alas, lack of UDMA66 support via either an adapter or the motherboard means that data transfer is restricted to UDMA33, although this makes little difference to performance [see UDMA66 overview, page 160].

The fastest claimed perimeter-read DVD-ROM drive, at 6X, is from Panasonic. The sound system is not up to reproducing the enhanced quality of the DVD format, although the fault may lie with the bundled Tiny speakers rather than the Yamaha DS-XG sound card. Additional features include an enhanced keyboard, with CD audio controls and four programmable hotkeys, and a joystick complements the bundled games suite.

**A Taxan Ergovision 750 TCO95 monitor** is provided and is, as with all of Taxan's

monitors, a feast for the eyes. Registration and sharpness can be finely tuned, and the user is rewarded with warm, bright colours. Taxan supports a range of monitors, so make sure you specify this model when you order.

### PCW DETAILS

**Price** £1526.32 inc VAT (£1299 ex VAT)

**Contact** Tiny Computers  
0800 821333

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

**Good Points** Excellent monitor.  
Huge hard drive.

**Bad Points** Lack of UDMA66 support for hard disk.

**Conclusion** Generous in its components.

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



## Viglen HomePro 3-550TS

**Viglen met our specification** admirably, if a little to the letter. However, to its credit the company did include an exceptional TNT2-based graphics system branded by Diamond as a Viper 770D. With twice the minimum requested video memory, this card won't have to be replaced for some time, even taking into account the frantic pace of change in the graphics-card arena. It also has full 32-bit colour support for 2D as well as 3D

applications. A 10.2Gb UDMA33 Western Digital hard disk met our requirements but failed to impress compared to the 18Gb UDMA66 solutions offered by the competition. Like in other PCs here, there was no backup storage.

A token sound system supplies the bare essentials for multimedia in office applications, although the speed and performance of this system is such that you could dabble in more demanding 3D packages were the sound quality better.

Approaching the single-thumbscrew access to the system's innards, you notice the easily readable backplate plug labels that aid setup. Some considerable effort has been made to ensure that airflow is not restricted, with tidy cable clipping and an efficient distribution of slot cards.

The spacious interior offers a reasonable amount of upgrading through vacant PCI/ISA slots and 3.5in/5.25in bays.

**A Sony monitor** has been rebranded as a Viglen and provides one of the highest refresh rates — 120Hz at a resolution of 800x600. At the preferred 1024x768 resolution, the solid 100Hz refresh translates to pinpoint sharpness and registration right up to the edge of the screen.

### PCW DETAILS

**Price** £1526.32 (£1299 ex VAT)

**Contact** Viglen 0181 758 7000

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

**Good Points** Quality monitor for an excellent graphics system.

**Bad Points** No storage, and a bare-bones sound system.

**Conclusion** Not as impressive as competing systems.

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



# Route **UDMA66**

**A**lmost half the vendors who participated in this group test dabbled bravely with the new Ultra ATA/66 interface (also known as Ultra DMA/66 and Fast ATA-2), although some failed to follow through with the requisite support on the motherboard or an interface card.

As a low-cost extension of the Ultra ATA/33 hard-drive interface, UDMA66 allows host computers to send and receive data at burst rates of up to 66.6Mb/sec, twice that of UDMA33. However, it's not just a question of installing a hard disk featuring the enhanced interface: other supporting features are required.

Most notably, a PCI-EIDE bus interface controller is required in the form of either motherboard core logic integration, or a PCI adapter card like that from Promise Technologies, adopted

here by Gateway and Hi-Grade. Further, a 40-pin, 80-conductor cable is required to heighten data integrity through providing 40 ground lines, in addition to the nominal 40 previously provided, in an effort to reduce crosstalk. If the standard 40-pin, 40-conductor cable is used, the PC and drive will detect this and revert to UDMA33.

No software support is required under any flavour of Windows. Cyclic Redundancy Checks (CRC), a method of error detection on the data transfers already present under UDMA33 interfaces, is carried through to the new interface.

**It all sounds absolutely wonderful;** but how does this translate to overall system performance? Under normal usage you may feel that you've been swindled, with no apparent

improvement to performance as our results under the SYSmark 98 test show [see page 168].

**What has improved** is the ability for this new breed of drives to increase the size of their buffered reads. During long, consistent, sequential reads, the possibility for the hard drive to fill its buffer faster than the host can empty it, is much reduced. This working condition can be perceived under on-the-fly MPEG encoding or similar working conditions, where UDMA66 will dramatically improve performance.

If, as in the case of Tiny and Dan in this group test, the hard disk supports UDMA66 but is connected to only UDMA33-supporting componentry, then the drive will revert to the slower burst data rates with no other adverse affects.

## The 810 from Intel

**I**ntel's 810 chipset, targeting low-cost, Celeron-based systems, is the first in a new breed of fully featured integrated chipsets born out of the reduced-micron production methods championed in the company's new processors. A noteworthy integration is the i752, Intel's successor to the i740 graphics chip, using a dual-rendering pipeline and offering hardware motion compensation for MPEG2-decoding that can improve soft DVD playback.

Three flavours of the chipset will appear initially, with the cheapest version, the i810-L, only supporting the ATA33 hard-disk protocol and four PCI slots. The i810 will support ATA66 and six PCI slots, whereas the 'high-end' version, the i810-DC100, will enhance this support with the addition of a display cache to speed up 3D graphics.

The 810 departs from the standard architecture of the North Bridge/South Bridge chips, to three 'hubs' dubbed the Accelerated Hub Architecture. The Graphics and Memory Controller Hub (GMCH) addresses PC100 memory on a bus 64 bits wide, clocked at 100MHz and offering a bandwidth of 800Mb/sec over the CPU bus bandwidth of 533Mb/sec.

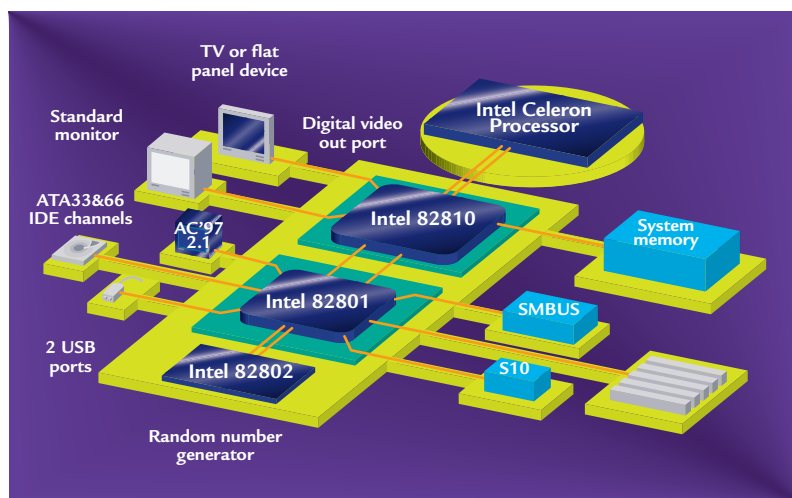
The 100MHz internal 64-bit 'Direct AGP' bus enables the graphics controller access to main memory at 800Mb/sec

compared to the 533Mb/sec bandwidth of AGP 2X. This improves upon other graphically integrated chipset solutions that use UMA (Unified Memory Architecture) where the integrated video allocates the required frame buffer from the system memory. By sharing the system memory, the integrated video is limited to slow 66MHz memory access.

A new dedicated bus connects the GMCH to the I/O Controller Hub (ICH). Each device integrated into these chips communicates directly with the CPU, memory controller and graphics controller using an 8-bit wide bus

clocked at 133MHz at '2X-mode', which provides a bandwidth of twice that of PCI at 266Mb/sec. The ICH also includes Audio Codec 97 (AC97). This lets the CPU use some of its horsepower to 'emulate' a modem or sound card, with analogue data ported externally through low-cost equipment.

Finally, the Firmware Hub (FWH) consists of a 4Mbit EEPROM containing the motherboard and graphics BIOS, plus a strip of active silicon that generates random numbers through hardware-based thermal noise calculations.





# Table of features



MANUFACTURER	DAN	DELL COMPUTERS	EVESHAM MICROS	GATEWAY	HI-GRADE
MODEL NAME	DANTUM 550/CP	XPST550	PLATINUM VOODOO III	GP7-550	ULTIS PV3
Price (ex VAT)	£1,299	£1,299	£1,299	£1,299	£1,299
Price (inc VAT)	£1,526.32	£1,526.32	£1,526.32	£1,526.32	£1,526.32
Telephone	0181 830 1100	0870 1524850	0800 496 0800	0800 55 2000	0181 532 6115
URL	<a href="http://www.dan.co.uk">www.dan.co.uk</a>	<a href="http://www.dell.co.uk">www.dell.co.uk</a>	<a href="http://www.evesham.com">www.evesham.com</a>	<a href="http://www.gateway.com/uk">www.gateway.com/uk</a>	<a href="http://www.higrade.com">www.higrade.com</a>
HARDWARE SPECS					
Processor	Intel 550MHz Pentium III	Intel 550MHz Pentium III	Intel 550MHz Pentium III	Intel 550MHz Pentium III	Intel 550MHz Pentium III
RAM / type	128Mb / PC100 SDRAM	128Mb / PC100 SDRAM	128Mb / PC100 SDRAM	128Mb / PC100 SDRAM	128Mb / PC100 SDRAM
Occupied / free RAM slots	1 / 3	1 / 3	1 / 4	1 / 3	1 / 3
Hard disk	Western Digital Expert 418000	IBM DJNA-371350	Quantum Fireball	Western Digital Caviar 313000	Western Digital Expert 418000
Hard disk size / interface	18Gb EIDE (UDMA33)	13.6Gb EIDE (UDMA33)	12.7Gb/EIDE (UDMA33)	13Gb/EIDE (UDMA66)	18Gb/EIDE (UDMA66)
Storage drive	Panasonic LS120 Ver5	x	x	x	Iomega Zip100
Size of media	120Mb	n/a	n/a	n/a	100Mb
Storage drive interface	EIDE	n/a	n/a	n/a	EIDE
MOTHERBOARD COMPONENTS					
Motherboard manufacturer	SuperMicro	Intel (Dell specified)	Chaintech	Intel	ASUS
Model	P6SBA rev2.00	7073D	6BTA3	Tabor II	P2B
Chipset	Intel 440BX	Intel 440BX	Intel 440BX	Intel 440BX	Intel 440BX
L2 cache	512Kb	512Kb	512Kb	512Kb	512Kb
EXPANSION AND I/O					
3.5 / 5.25in bays	4 / 3	4 / 2	3 / 3	4 / 4	4 / 3
Free 3.5 / 5.25in bays	2 / 2	2 / 1	1 / 2	2 / 3	1 / 2
PCI / ISA / shared slots	3 / 2 / 1	4 / 0 / 1	3 / 1 / 1	4 / 0 / 1	3 / 3 / 1
Free PCI / ISA / shared slots	2 / 2 / 0	2 / 0 / 1	2 / 1 / 1	3 / 0 / 0	1 / 2 / 0
USB / Ser / Par / PS2 ports	2 / 1 / 1 / 2	2 / 1 / 1 / 2	2 / 2 / 1 / 2	2 / 2 / 1 / 2	2 / 2 / 1 / 2
MULTIMEDIA					
CD-ROM	Toshiba XM-6402B	Toshiba SD-M1202 DVD ROM	Matsushita DVD SR-8583	Mitsumi FX-4010MB	ASUS 40x AKU
CD-ROM speed / interface	36X / EIDE	32XCD-ROM 4.8xDVD / EIDE	32XCD-ROM 4.8xDVD / EIDE	32X / EIDE	40X / EIDE
Sound card manufacturer	Creative Labs	Turtle Beach	Creative Labs	Creative Labs	Creative Labs
Sound card model	SoundBlaster Live Value	Montego II (A3D)	SoundBlaster PCI-64V	SoundBlaster PCI-64D	SoundBlaster Live Value
Speakers	PC Works 4.1 Surround System	Altec Lansing ACS-495	ZyDec ZyFi2 Pro	Cambridge Soundwks GCS200	Samsung Magic Speakers
Graphics card	ATi Rage Magnum	Diamond Viper V770D TNT2	STB/VooDoo3 3000	STB Velocity 4400	STB/Voodoo3 3000
Graphics RAM / max RAM	32Mb / 32Mb	32Mb / 32Mb	16Mb / 16Mb	16Mb / 16Mb	16Mb / 16Mb
Monitor	CTX VL700	Nokia D1025HE	Mag DJ710	LG Electronics EV700	ADI MicroScan 5G
Monitor size / max view diag	17in / 15.7in	17in / 16in	17in / 16.1in	17in / 15.9in	17in / 16in
Max refresh at 800x600	100Hz	85Hz	85Hz	85Hz	120Hz
Max refresh at 1024x768	85Hz	85Hz	85Hz	85Hz	100Hz
Max refresh at 1280x1024	60Hz	75Hz	60Hz	60Hz	85Hz
OTHER INFORMATION					
Modem	US Robotics PCI Modem	3Com/US Robotics PCI	Diamond SupraExpress 56i V Pro	GVC US Robotics PCI	Accord LT WinModem
Misc hardware				Promise ATA 66 PCI Adapter	Promise ATA 66 PCI Adapter
Bundled software	MS Works 4.5, Dance Studio, Expendable, PowerSlide	MS WorksSuite99	Corell WordPerfect Suite 8	MS WorksSuite99	Lotus SmartSuite97
Standard warranty	12 months RTB	3 yrs (Yr1 Next w'day on-site Yr 2 & 3 : CAR)	2yr on-site maintenance	1st year on-site, then 2 yrs RTB	12 months on-site
Warranty options	On-site £35 ex VAT	Up to 4 yrs on-site	3rd year £99 ex VAT	3yrs on-site - £149 ex VAT	3 yrs on-site - £100 ex VAT
Sales hours	Mon-Fri 9.30-7	Mon-Fri 8-8, Sat 9-6, Sun 11-5	Mon-Fri 9-7, Sat 9-5.30	Mon-Sat 8-10	Mon-Fri 9-6
Technical support hours	Mon-Fri 9.30-6	Mon-Fri 8-8	Mon-Sat 9-5.30	Mon-Sat 8-10	Mon-Fri 9-5.30

# Table of features



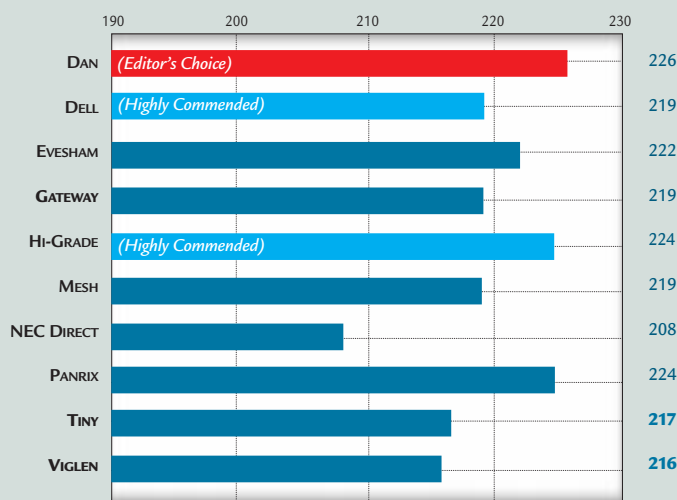
MANUFACTURER	MESH	NEC DIRECT	PANRIX	TINY	VIGLEN
MODEL NAME	ELITE PIII 550ST	DIRECTION SE 550B	FUSION ULTRA 550	HOME 550 PLUS	HOMEPRO 3-550TS
Price (ex VAT)	£1,299	£1,299	£1,299	£1,299	£1,299
Price (inc VAT)	£1,526.32	£1,526.32	£1,526.32	£1,526.32	£1,526.32
Telephone	0181 208 4706	0870 010 6324	0113 244 4958	0800 821333	0181 758 7000
URL	<a href="http://www.meshplc.com">www.meshplc.com</a>	<a href="http://www.necdirect-europe.com">www.necdirect-europe.com</a>	<a href="http://www.panrix.com">www.panrix.com</a>	<a href="http://www.tiny.com">www.tiny.com</a>	<a href="http://www.viglen.co.uk">www.viglen.co.uk</a>
HARDWARE SPECS					
Processor	Intel 550MHz Pentium III	Intel 550MHz Pentium III	Intel 550MHz Pentium III	Intel 550MHz Pentium III	Intel 550MHz Pentium III
RAM / type	128Mb / PC100 SDRAM	128Mb / PC100 SDRAM	128Mb / PC100 SDRAM	128Mb / PC100 SDRAM	128Mb / PC100 SDRAM
Occupied / free RAM slots	1 / 3	1 / 3	1 / 3	1 / 3	1 / 3
Hard disk	IBM DTTA-371010	Maxtor 9108005	IBM DJNA-371350	Western Digital Expert 418000	Western Digital Caviar 310200
Hard disk size / interface	10.1Gb/EIDE (UDMA33)	10Gb/EIDE (UDMA33)	13.6Gb/EIDE (UDMA33)	18Gb/EIDE (UDMA33)	10.2Gb/EIDE (UDMA33)
Storage drive	x	x	x	x	x
Size of media	n/a	x	x	x	x
Storage drive interface	n/a	n/a	n/a	n/a	n/a
MOTHERBOARD COMPONENTS					
Motherboard manufacturer	ASUS	Intel	ASUS	Micro-Star	Micro-Star
Model	P2B	Seattle2	P2B	MS6119 ver1.1 BX2	MS6119 ver1.1 BX2
Chipset	Intel440BX	Intel440BX	Intel440BX	Intel440BX	Intel440BX
L2 Cache	512Kb	512Kb	512Kb	512Kb	512Kb
EXPANSION AND I/O					
3.5 / 5.25in bays	4 / 3	3 / 3	4 / 3	3 / 2	4 / 2
Free 3.5 / 5.25in bays	2 / 2	2 / 1	2 / 2	1 / 1	2 / 1
PCI / ISA / shared slots	3 / 3 / 1	3 / 1 / 1	3 / 3 / 1	3 / 2 / 1	3 / 2 / 1
Free PCI / ISA / shared slots	1 / 2 / 1	2 / 1 / 1	2 / 1 / 1	2 / 2 / 0	2 / 2 / 0
USB / Ser / Par / PS2 ports	2 / 2 / 1 / 2	2 / 2 / 1 / 2	2 / 2 / 1 / 2	2 / 2 / 1 / 2	2 / 2 / 1 / 2
MULTIMEDIA					
CD-ROM	Creative Labs PCDVD-5241E	Hitachi	AOpen DVD-9632	Pioneer DVD-103	Samsung SCR-3231
CD-ROM speed / interface	32xCD-ROM 5xDVD / EIDE	32xCD-ROM / EIDE	32xCD-ROM 6xDVD / EIDE	32xCD-ROM 6xDVD / EIDE	32xCD-ROM / EIDE
Sound card manufacturer	Creative Labs	Creative Labs	Creative Labs	Yamaha	Yamaha
Sound card model	SoundBlaster PCI-64V	SoundBlaster PCI-64V	SoundBlaster PCI-128	DS-XG	Labway YMF714 XG PCI
Speakers	Yamaha YST-M20 DSP	Labtec LS1030	Yamaha YST-M20 DSP	Tiny CPR-100	Yamaha YST-M15
Graphics card	STB/Voodoo3 3000	STB/Voodoo3 3000	STB/Voodoo3 3000	Tiny licensed manufacture of TNT2	Diamond Viper V770D TNT2
Graphics RAM / max RAM	16Mb / 16Mb	16Mb / 16Mb	16Mb / 16Mb	32Mb / 32Mb	32Mb / 32Mb
Monitor	Philips 107E	NEC C700	Viewsonic E771-2	Taxan Ergovision 750 TCO95	Sony CPD-2001GT
Monitor size / max view diag	17in / 16in	17in / 16in	17in / 16in	17in / 16in	17in / 16in
Max refresh at 800x600	100Hz	100Hz	100Hz	85Hz	120Hz
Max refresh at 1024x768	75Hz	75Hz	85Hz	75Hz	100Hz
Max refresh at 1280x1024	60Hz	60Hz	60Hz	75Hz	75Hz
OTHER INFORMATION					
Modem	US Robotics PCI	x	Accton US Robotics PCI	E-Tech PCI 56PVP	CIS PCI
Misc hardware	x	x	x	Tiny JSK210 Joystick	x
Bundled software		McAfee Viruscan Adobe Acrobat Reader	Lotus SmartSuite97	MS WorksSuite99 & Combat Flight Sim, 101 Dalmations DVD Tomb Raider III (demo)	MS WorksSuite99
Standard warranty	1st year on-site, then 2 yrs RTB labour only	1 year on-site	1 2months return to base	12 months return to base	12 months collect and return
Warranty options	Up to 5 yrs on-site available	2 yrs on-site - £49	1 yr on site - £60 ex VAT	Up to 3 yrs on-site (16 w hr resp) 4 & 5 yr on-site (8 w hr resp)	Up to 4 hour response on-site
Sales hours	Mon-Fri 9-6, Sat 10-4 Sun 10-2 (London store only)	Mon-Fri 8-7	Mon-Fri 9.30-5.30, Sat 10-4	Mon-Fri 9-5.40, Sat 9-5.30, Sun 10-4	Mon-Fri 9-5, Sat 9-1
Technical support hours	Mon-Fri 9-5.30	Mon-Fri 8-8	Mon-Fri 9.30-5.30, Sat 10-4	Mon-Sat 9-5.30	Mon-Fri 9-5, Sat 9-1

# PCW Labs Report



## SYSmark 98

Bigger is better

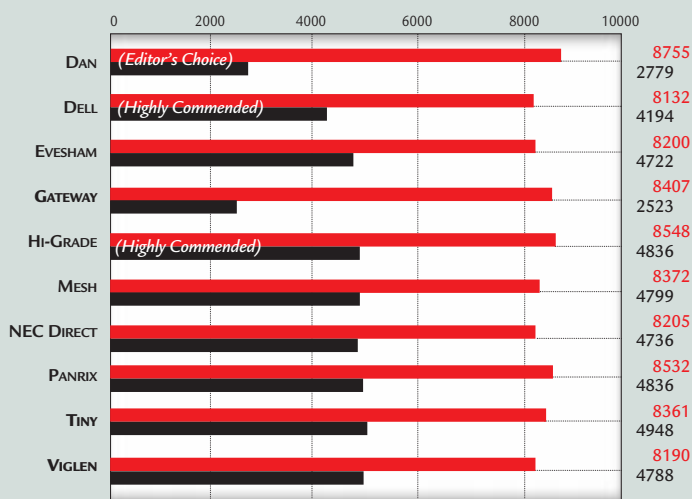


It's rare to see performance results as close as we did in this group test, due largely to our specification of 550MHz processor and minimum 16Mb of graphics memory. Any fluctuations would most likely be down to driver revisions and/or software/hardware setup configurations. Our testing methodology does not reflect the effects of doubling the memory quota on the graphics card, but you may be assured that the extra 16Mb memory is certainly not superfluous under other conditions. The Dan system being the highest achiever is evidence that the ATi Rage Magnum was at home in this setup and was tightly configured for optimal performance.

As with SYSmark98, the 3DMark 99 Max results hardly fluctuated, except for the overall scores of Dan and Gateway that were substantially lower than the rest. For the Gateway system this can be simply explained through the use of STB's Velocity 4400. Although an admirable card, up against the latest generation of graphics processors, it just can't keep up. The low overall performance score for the Dan provoked an interesting glance at the 3DMark suite of test scores, which revealed that this card was reducing geometry processing strain on the CPU to its own detriment. However, the overall low score isn't apparent in use, so the card is obviously producing the goods where required.

## 3DMark99 Max

Bigger is better



## How we did the tests



● **SYSmark** measures the time it takes the PC to perform a variety of tasks in 14 common office and content creation applications. Each test is run three times to ensure consistent results. The applications are:

**Office Productivity:** CorelDraw 8, Microsoft

Excel 97, Dragon Systems NaturallySpeaking 2.02, Netscape Communicator 4.05 Standard Edition, Caere OmniPage Pro 8.0, Corel Paradox 8, Microsoft PowerPoint 97, and Word 97.

**Content Creation:** MetaCreations Bryce 2, Avid Elastic Reality 3.1, Macromedia Extreme 3D 2, Adobe Photoshop 4.01, Adobe Premiere 4.2, and Xing Technology XingMPEG Encoder 2.1.

Performance depends on processor speed, RAM, graphics card and disk I/O. As the tests are based on widely available software packages, SYSmark scores accurately reflect how the machine will perform in a real-world situation.

● **3DMark99 Max** is an instruction-set-optimised version of 3DMark99 from Futuremark Corporation, which tests the PCs' 3D capabilities. When applicable, the suite of tests will draw upon AMD's 3DNow! or Intel's KNI instruction sets.

It uses a Real World DirectX 6.1 3D games engine to produce one result from a balanced testing methodology that includes image quality, rendering speed, CPU capability and, depending on hardware support, a test for embossed bump-mapping.

All 3DMark99 Max benchtests are performed at a resolution of 1024x768 in 16-bit colour depth, with the test suites set to loop three times. Again, the higher the score, the better the result. However, due to the implementation of instruction set optimisation, no comparison can be made between the results from the original 3DMark99 and the Max version.

➤ More details at [www.bapco.com](http://www.bapco.com) and [www.3dmark.com](http://www.3dmark.com)



# Editor's Choice

**T**he overall impression of the systems supplied for this group test is one of astonishing speed. Dan's system achieved the highest score we have seen on SYSmark98, at 226. Much of this can be accredited to the Pentium III 550MHz processor, but the other results show that a well-balanced system does achieve just that little bit more. Flicking through the advertisements in PCW reveals a number of vendors prepared to sell systems based on the Pentium III 550MHz for much less than the asking price, but you only have to read the spec carefully

to see how this is achieved — by stinting on other components.

We asked for what we regarded as the minimum to provide a substantial workstation; we even asked for some 3D motion rendering, and were generally pleasantly surprised at what we received.

All the vendors are to be applauded for achieving our bare minimum at the price we stipulated. What impressed us most was how some companies even found it within their means to improve upon this minimum requirement with, in some cases, some substantial additions. For £1300 you can purchase some impressive kit.

A vital measurement of a good

their customers' needs.

**Editor's Choice is awarded to the Dan Dantum 550/CP**, although this is not based on record performance results alone. The overall package showed attention to every detail and featured some impressive touches. The inclusion of a huge hard drive was slightly marred by lack of support for the new high-speed interface standard, although

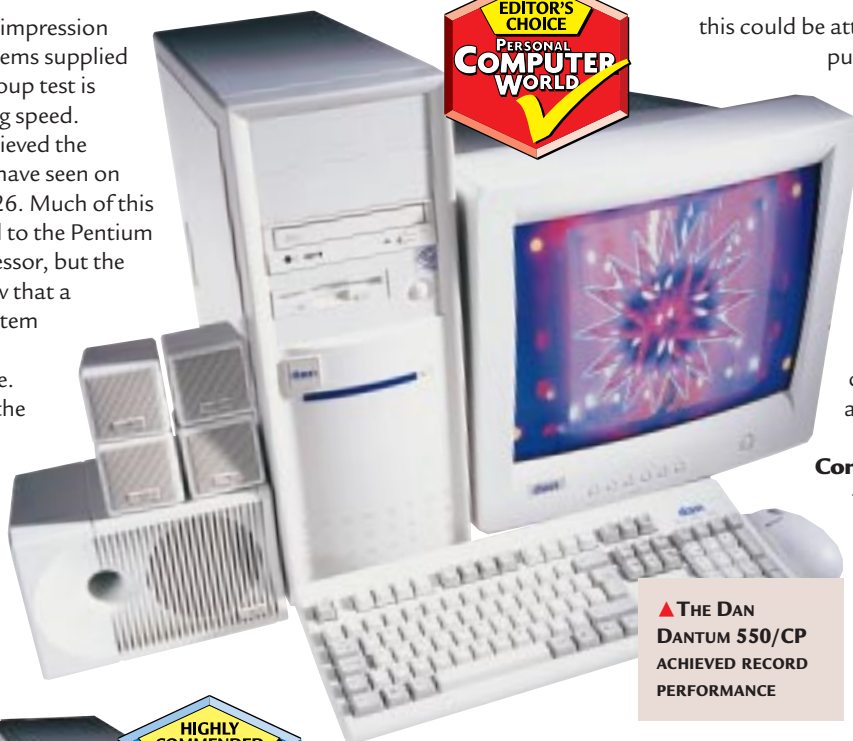
this could be attended to later with the purchase of an adapter card. Dan was also one of only two vendors to supply a removable media drive in excess of the standard floppy's 1.44Mb. Although the LS120 is not the most popular drive, this backup facility will no doubt prove essential at some point.

**Our first Highly Commended award goes to the Dell XPST550.**

It has evidently been built from the ground up with a serious workstation in mind. From the custom-designed, Intel-based motherboard offering simple system

diagnostics, to the overall beefy spec, it's a powerful, reliable contender.

**A Highly Commended award also goes to the Hi-Grade Ultis PV3** for its extremely impressive array of components, including support for the new high-speed hard-disk interface and with a 100Mb removable-media storage drive. The main criticism, which will potentially affect very few who would consider this system, is that the choice of graphics system was unable to support 32-bit true colour in 3D applications. These systems, by virtue of their super-fast processors, could potentially be used for professional graphics work, so this lack of support could limit some users.



▲ **THE DAN DANTUM 550/CP ACHIEVED RECORD PERFORMANCE**



▲ **DELL'S XPST550 IS A POWERFUL PC**



► **HI-GRADE'S ULTIS PV3 IMPRESSED**

