Best of the best

Looking for an award-winning PC? We challenged all of the computer companies that scooped a *PCW* prize in 1999 to send us a well-rounded system, which Santa would be proud to deliver.

F or our Christmas issue, we wanted to do something a bit special. Over the past year we have given awards to lots of different companies but we wondered which of them was the best. To find out we invited all of 1999's award winners to provide us with the ultimate Christmas machine – one that they felt you would want to see nestling underneath the tree.

We left our minimum requirements fairly loose, so that we could see who would offer the right balance between value and performance. One thing that we did insist upon was a three-year parts and labour warranty, with at least the first year on-site, so that if something goes wrong you're covered.

What we were really looking for were good all-rounders that could be used as an office station, a games console, a DVD centre and an Internet gateway. All the standard yardsticks – such as build quality and value for money – applied, but we were also looking for PCs that you could have some fun using as well. We received a broad range of specifications and prices and the chances are that, if you're looking to invest in a new computer this Christmas, you'll find something to suit your needs and budget in the next few pages.

Contents

• *PCs reviewed by Jason Jenkins and Will Head. Tested by David Eade, Jason Jenkins and Will Head.*

Ratings

★★★★★ **Buy while stocks last**
★★★★ **Great buy**
★★★ **Good buy**
★★ **Shop around**
★ **Not recommended**

Carrera **Octan M600**

Carrera has put together a feature-packed PC that covers most bases. The use of AMD's 600MHz Athlon saw the Carrera storming home to score the fastest SYSmark result in the group test. However, speed alone does not make a machine a good buy. Thankfully we were not let down on the peripherals.

Carrera has recognised the need for removable storage as a solution to the ever-increasing size of hard drives, and opted for a SCSI Yamaha CD-RW drive connected to an Adaptec 2094 PCI SCSI card. Taking the SCSI route may seem a little unnecessary, as only one device is using the channel, but its inclusion vastly increases the upgradability of the machine and ensures its longevity.

On the multimedia front, there is a Panasonic six-speed DVD-ROM and Creative's SoundBlaster Live! 1024 sound card. The display set comprises a 17in Hansol 701A monitor and a Guillemot Cougar TNT2M64 graphics card. If there's anything that let this machine down and prevented it from stealing the show, it was the choice of graphics card, resulting in Carrera not emulating its outstanding SYSmark results in the 3DMark tests. For an extra £50 (ex VAT) you can upgrade to a TNT2 Ultra card, which is well worth the cash.

Inside, as usual with Carrera's systems, the case was tidy and well laid out, with nothing obscuring the major components. The case is a little hard to get into – unless you know the screws are on the front, not on the back – but other than that we couldn't fault the build quality.

A 13.5GB IBM hard disk takes care of storage and Lotus SmartSuite Millennium will get you up and running straight away. Rounding things off is a three-year on-site warranty, giving you peace of mind as well as a great machine.

PCW DETAILS

Price *£1,643.83 (£1,399 ex VAT)*
Contact *Carrera Technology 0181 307 2800*
www.carrera.co.uk
Good points *Great warranty, superb 2D performance, SCSI card*
Bad points *Poor 3D performance*
Conclusion *An extremely well-specified machine, poorly coupled with a graphics card that doesn't do it justice*

Build Quality	★★★★★
Performance	★★★★
Value for Money	★★★★★
Overall Rating	★★★★★

CyberMax **Enthusiast C-500**

The first thing that strikes you about the CyberMax is that it uses integrated sound and video. While this is not necessarily a bad thing, you have to remember that a machine which takes this route is never going to win any awards in the PC entertainment arena.

The onboard graphics chipset is connected to a CyberMax branded 17in monitor, through a socket labelled as serial port 2 on the back of the machine. This may be a minor gripe, but it shows a lack of attention to detail.

The monitor itself has a maximum resolution of 1,280x1,024 but you'll only be able to run it at this resolution for about 10 minutes before the pitiful 60Hz refresh rate gets on your nerves – if it doesn't give you a headache. A 1,024x768 resolution is marginally better, but for long-term use you'll have to settle for a resolution of 800x600 at 85Hz.

The core of the system is adequate – a 500MHz Celeron backed up by one 128MB DIMM sitting in one of the two memory slots. The unbranded modem occupies one of the three PCI slots, with the only other available slot being the vacant audio modem riser (AMR) slot. Storage is provided by a 13.6GB Western Digital drive with a Panasonic Zip 100 providing the removable storage. Acceptable DVD playback comes from a Toshiba drive and Cinemaster DVD player.

The machine was tidy inside, and apart from a few minor details being overlooked, build quality was good.

On the software side, CyberMax has included WordPerfect Office Suite and a bundle of reference and games packages.

The CyberMax might seem an attractive entry-level option, but the poor upgrade path offered by the motherboard means that it'll probably need replacing in the near future.

PCW DETAILS

Price *£1,056.33 (£899 ex VAT)*
Contact *CyberMax 01462 636 600*
www.cybmax.com
Good points *Reasonable specification for the money*
Bad points *Terrible monitor, poor upgradability*
Conclusion *The machine is let down in several areas, making the price a false economy*

Build Quality	★★★★
Performance	★
Value for Money	★★
Overall Rating	★★

Dell **Dimension XPS T600**

Dell provided us with a great machine, but it's not quite a winner. The core is a 600MHz Pentium III processor – since Dell's association with Intel makes an Athlon machine very unlikely.

A single 128MB DIMM leaves two memory slots for expansion. Build quality is up to Dell's usual high standards, with the hard drive mounted vertically in a compartment at the front of the case and a plastic funnel channelling air towards the processor

from a fan located behind it. Future expansion is catered for by single external 3.5in and 5.25in bays and another hard drive bay.

The 13GB IBM Deskstar drive could be larger, but will be more than adequate for most users. Full marks go to Dell for opting for a TNT2 Ultra graphics card, which helped it to secure the fastest 3DMark score. The motion compensation built into this chip, combined with the fast processor, enables you to watch smooth DVD movies on its bundled Cinemaster player.

Dell picks up extra brownie points for its inclusion of a Zip 250 rather than a Zip 100. The Creative SoundBlaster Live! is a solid choice, as is the US Robotics modem.

The 19in monitor is the biggest disappointment, however. Full credit goes to Dell for splashing out on a 19in unit, but the display was not great. Although it was clear and colours were vivid, it was marred by interference. Moving

the monitor did help slightly, but we could not replace the captive cable and therefore have no way of knowing if the fault lay in its connection.

This, combined with the fact that other manufacturers are offering slightly more for your money this month, means that Dell just loses out on an award.

PCW DETAILS

Price *£1,526.32 (£1,299 ex VAT)*
Contact *Dell 0870 152 4850*
www.dell.com/uk
Good points *Fast processor, good graphics card*
Bad points *The monitor is a major disappointment*
Conclusion *A good machine that just falls short of its ultimate goal*

Build Quality	★★★★
Performance	★★★★★
Value for Money	★★★
Overall Rating	★★★★

Elonex **ProSentia 4000**

For anyone feeling flush at Christmas, this machine would be a good buy. Elonex has bundled a lot of extra peripherals with this PC and the machine itself is fairly packed.

The core is a Pentium III 550MHz processor, backed up by 128MB of SDRAM. The MSI motherboard is stuffed with cards. The most unusual addition is the Aver Media TV tuner which, when you plug an ariel in, allows

you to watch TV on your computer, capture video and even look at Teletext. It has S-Video, composite, audio in and out ports.

The Aureal Sonic Vortex II sound card is an excellent choice, and has an optical digital out port as well as the usual connectors. A WinFast TNT2 graphics card provides fairly fast 3D support, but for the money we would have preferred a TNT2 Ultra.

The HP CD-RW and Sony DVD are both excellent drives, while the 19in shadow-mask monitor is adequate, although we have seen better. A 20GB Fujitsu hard drive provides more than enough capacity for most users.

Where this machine really scores, however, is with all the bundled hardware that comes with it: the Epson Stylus Colour 440 printer is not the best that Epson has to offer, but is reasonably good. An Acerscan Prisa 320U USB scanner, with an optical resolution of 300dpi is, again, not the best scanner
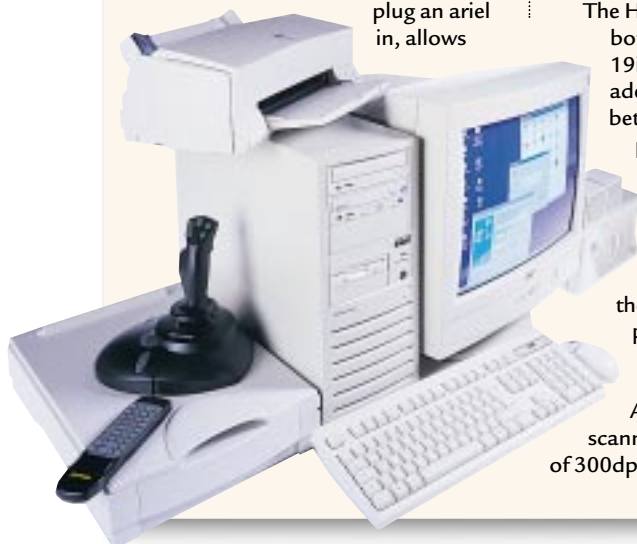
but it will get you going. The excellent Microsoft Office 2000 Small Business Edition and a Microsoft Sidewinder Joystick have also been thrown in for good measure.

This PC is expensive, but it would make a great Christmas present. If you don't mind having your peripherals chosen for you, the Elonex is definitely worth considering.

HIGHLY COMMENDED
PERSONAL COMPUTER WORLD

PCW DETAILS

Price *£1,996.33 (£1,699 ex VAT)*
Contact *Elonex 0800 037 4466*
www.elonex.co.uk
Good points *TV tuner, sound card, Microsoft Office 2000*
Bad points *High cost and the monitor could be slightly better*
Conclusion *An expensive PC but a good buy if you can afford it*

Build Quality	★★★★★
Performance	★★★
Value for Money	★★★★★
Overall Rating	★★★★★

Evesham Vale **Athlon TNT2+**

Just like Carrera, Evesham has opted for a fast 600MHz Athlon processor, which helps it to score one of the top SYSmark results in this group test. Its 3DMark score was not as healthy, though. We attribute this to the graphics card – the Chaintech Desperado TNT2 M64. This card's 64bit memory interface appears to have created a 3D performance bottleneck and we would advise upgrading to a TNT2 Ultra for an extra £70 (ex VAT).

The Evesham's build quality is excellent, with the cards positioned thoughtfully, plenty of access room for upgrading and a very tidy layout. The dual-processor fans should keep it cool.

Evesham has opted for a better monitor than Carrera; the excellent 17in Taxan Ergovision 755TCO99, with a Trinitron tube and powered USB hub. There's a Zip 100 drive to complement the 20GB Maxtor hard drive, but we would like to have seen a Zip 250 or even a CD-RW.

The motherboard is from MSI and has two spare PCI slots, two ISA slots and one shared slot for flexibility. The 128MB of RAM is contained in a single DIMM. A Creative SoundBlaster 128 provides adequate sound, although others have opted for one of the various incarnations of the better Creative SoundBlaster Live! board. Providing the Internet connection is a Diamond SupraExpress Pro.

A Pioneer DVD-ROM drive will keep you occupied if you want to watch movies and will also let you read the latest DVD software. The office bundle is Lotus SmartSuite Millennium.

Overall this is a very good, well-built machine, but it is simply more expensive than others. Even when the excellent three-year on-site warranty is taken into account, it is not quite as good value as Carrera's offering.
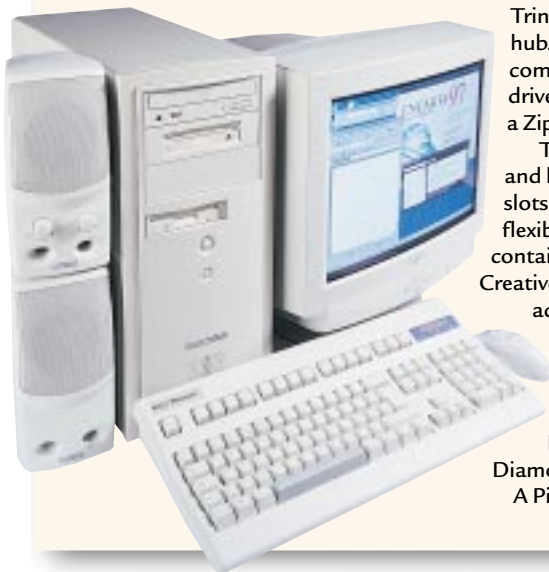
PCW DETAILS

Price *£1,771.58 (£1,507.90 ex VAT)*
Contact *Evesham 0800 038 0800*
www.evesham.com
Good points *A very well-built PC with a fast processor*
Bad points *We would like to have seen a TNT2 Ultra card to go with it*
Conclusion *A good machine that just misses out on an award*

Build Quality	★★★★★
Performance	★★★★
Value for Money	★★★
Overall Rating	★★★★

Hi-Grade **Ultis PV3**

Hi-Grade has been sensible about the pricing of the Ultis PV3, allowing for a decent spec machine without pushing it out of the Christmas market. The 500MHz Pentium III and 128MB of SDRAM – the latter occupying one of the three DIMM slots – provides the backbone of this competent system. The 22GB hard drive comes from IBM but, unfortunately, no provision, such as a Zip drive or CD-RW, has been made for backing up or transferring data.

The Hi-Grade-badged 19in Sampo monitor provides a reasonable display, but there are better monitors available in this group test at around the same price point. Graphics are provided courtesy of a Matrox Millennium G400 32MB dual-head card, which offers impressive performance as well as innovative features such as dual output.

The sound stage is a combination of Diamond's Promedia speakers and a SoundBlaster Live! Value card.

Inside the case, the cables are tidy but could have been routed a little more thoughtfully. At the moment the main power cables obscure access to the processor and main memory.

The case offers good upgradability with two free 5.25in bays and two free 3.5in bays. Two ISA slots are unoccupied, as is one PCI slot, the others being taken by the sound card, Accord modem and Pro-link TV tuner. The latter is a decent inclusion for a Christmas PC and expands the uses of the machine.

In the box there's a copy of Lotus SmartSuite Millennium for your business needs, while on the fun side of things there are copies of Tomb Raider 3, Half-Life and MechWarrior 3, as well as a Microsoft Sidewinder gamepad. On the whole, the machine is well-specified for the job, but the lack of removable storage lets it down slightly.

PCW DETAILS

Price *£1,549.83 (£1,319 ex VAT)*
Contact *Hi-Grade Computers 0181 532 6100*
www.higrade.com
Good points *TV tuner, quality sound and graphics*
Bad points *No removable storage*
Conclusion *On the whole a good machine let down by a few omissions*

Build Quality	★★★★
Performance	★★★
Value for Money	★★★★
Overall Rating	★★★★

Mesh **Millennium 500**

For this group test Mesh opted to provide a slower processor in exchange for a better monitor and a CD-RW, making this machine more appealing to those who aren't after just raw speed.

Taking care of the display is the shadow-mask Taxan Ergovision 975 TCO99. Although not quite up to the excellent standard of the 980 TCO99, it still provides superb image quality and a four-port powered USB hub. The 500MHz Athlon is one of the

slower processors here, although it will still enable you to perform office tasks and play games.

Graphics are provided by the excellent Matrox Millennium G400 dual-head card, which helps it stay up with the rest in the 3DMark results. You'll even be able to route the output to two monitors if you wish.

Build quality is up to Mesh's usual exemplary standards. The case has ample room for expansion – single external 3.5in and 5.25in bays are free. The MSI motherboard has proved its worth in Athlon machines from many manufacturers.

A Pioneer DVD-ROM and a Philips CD-RW sit at the top of the case. Aside from the colour clash, we were pleased to see the inclusion of a CD-RW – the advent of cheap CD media makes this a superb storage option. The 13GB Western Digital hard drive isn't massive but it's still more than adequate.

The latest Creative Soundblaster Live! 1024 sound card is also a good choice and has digital out ports for recording to DAT or MiniDisc. A fully featured office

suite, Corel WordPerfect Office 2000, is also included. The PC Works 4-Point surround sound speakers are decent enough but could be better.

At this price, though, we're not going to argue – and this well-rounded, fully-featured PC would be a great addition to Santa's sack.

PCW DETAILS

Price *£1,408.83 (£1,199 ex VAT)*
Contact *Mesh 0208 208 4706*
www.meshplc.co.uk
Good points *Monitor, graphics card, CD-RW*
Bad points *You might want a faster processor*
Conclusion *An excellent, incredibly well-rounded machine*

Build Quality	★★★★★
Performance	★★★
Value for Money	★★★★★
Overall Rating	★★★★★

Panrix **Magnum 600S**

Panrix supplied a 600MHz Athlon and 128MB of SDRAM, but in a system with a price to match. As well as these components, a 34GB IBM Deskstar hard drive was coupled with a Sony CD-RW to provide the removable storage for this massive fixed disk. The multimedia platform consists of a DVD-ROM from AOpen, Voyager speakers and, unfortunately, an onboard sound solution.

The Panrix comes with one of the best monitors in the group test, a 17in Sony Trinitron Multiscan 210ES. The image is crisp and clear and you'd be hard pushed to find anything to fault it on. It's true that a 19in model may be more desirable but we'd rather see a really good 17in model than an average 19in. Making the most of this great monitor is a dual-head Matrox Millennium G400 Max card that helped the Panrix score highly in both the SYSmark and 3DMark tests.

A USB keyboard has been chosen for this machine, which is good to see. On the right-hand side there is a PS/2 port, allowing the mouse to be connected directly to the keyboard. As usual with a machine from Panrix, the inside of the case was extremely tidy, especially considering the amount of kit that was packed in. Unfortunately, the one area where Panrix's build quality did fall down was having the wrong panel on the back of the machine. The onboard

sound ports were completely covered and we had to remove the rear panel to access them.

On the whole, this is a good machine with quality components, which just missed out on an award, although the price is a little high compared to some on offer.

PCW DETAILS

Price *£2,113.83 (£1,799 ex VAT)*
Contact *Panrix 01132 444 958*
www.panrix.com
Good points *Fast processor, fantastic monitor*
Bad points *Expensive, the rear cover blocks access to sound connectors*
Conclusion *Good-quality components were let down by a few errors during assembly*

Build Quality	★★★
Performance	★★★★★
Value for Money	★★★
Overall Rating	★★★★

Protek **Ultra MX**

Protek presented us with a hotch-potch of a system that had errors, but considering its low price we feel a bit churlish complaining.

The processor is a Pentium III 450MHz, and unfortunately this helped it to score the lowest SYSmark result in the test. The QDI motherboard has sufficient expansion, with one PCI, two ISA and one shared slot free. Build quality is fairly

tidy and a secondary fan hums away at the front of the case.

The rest of the spec is fair: an 8.4GB Fujitsu hard drive occupies one 3.5in bay. This may seem a little measly by today's standards, but for the price you can't argue. A Voodoo3 3000 graphics card provides fast 3D performance (although only in 16bit colour), and helps to explain why this machine has beaten others with faster processors in the 3DMark results.

A Creative SoundBlaster 128 sits in a PCI slot, with a Motorola V.90 modem completing the round-up. Protek has opted for Mag's D700 17in shadow-mask monitor, which displays a fairly even and crisp picture. The company has also chosen to supply a serial mouse – unforgivable when there is a PS/2 port free.

The poor keyboard should also be mentioned. The top right row of keys have been moved down a block and replaced by Sleep, Wake Up and Power keys. If you are used to different keys being in their place, you will find yourself

accidentally turning your machine off.

There's a lot going against the Ultra MX, but when you take its low cost into account, much of this can be forgiven. That said, you do get what you pay for to a certain extent and you'd be well advised to save up a bit more and go for a better specified system.

PCW DETAILS

Price *£800 (£680.85 ex VAT)*
Contact *Protek 0870 442 0888*
www.protekeurope.com
Good points *Low cost*
Bad points *Slower processor, serial mouse*
Conclusion *If £800 is really all you can afford then you could do far worse, but we'd recommend buying one of the other machines here if you have the money*

Build Quality	★★★
Performance	★★
Value for Money	★★★★
Overall Rating	★★★

Quantex **M550 Special Edition**

Quantex has produced a solid contender with a 550MHz Pentium III chip and 128MB of SDRAM on a Biostar motherboard. Western Digital supplied the ample 17.2GB hard drive, and removable storage comes courtesy of a Sony CD-RW. The £1,099 (ex VAT) price tag places this system in the mid-range section but does not make it prohibitive for the Christmas market.

The six-speed DVD-ROM is manufactured by Toshiba and the sound platform is based on an Aureal

Semiconductor Vortex2 PCI card connected to an Altec Lansing speaker system. The resulting sound reproduction was impressive. A 16MB Voodoo3 card, used in combination with a Quantex 17in monitor, provided a very respectable display. We did have a minor gripe with the on-screen display controls on the Quantex monitor – rather than opt for buttons, a pseudo jog dial has been implemented that is unintuitive to use. The Internet connection comes via a 3Com/US Robotics internal V.90 modem.

Two 64MB DIMMs provide the RAM, leaving only one slot on the motherboard free for future expansion. We would rather have seen a single 128MB DIMM to improve the upgrade path. In terms of expansion cards there is one free PCI slot, two free ISA slots and one vacant shared slot on offer. The Quantex case is very roomy, and offers good

upgradability – with two free 5.25in bays and three free 3.5in internal bays. Inside, build quality was good, with the cables well positioned to allow easy upgrading. Thoughtfully, the CD-RW, DVD-ROM and modem are all connected internally to the sound card, which shows good attention to detail.

PCW DETAILS

Price *£1,291.33 (£1,099 ex VAT)*
Contact *Quantex 01438 224 444*
www.qtx.co.uk
Good points *Well specified and up to the job*
Bad points *Not the best performer on the block, monitor was tricky to adjust*
Conclusion *Well targeted for the market, but didn't really blow us away*

Build Quality	★★★★
Performance	★★★
Value for Money	★★★★
Overall Rating	★★★

Tiny **Power Advantage 500 Plus**

It looks like Tiny's new super-curvy case is here to stay – whether or not you like it is a matter of personal taste. Inside there is a 500MHz Pentium III with 128MB of SDRAM. An 18GB Western Digital drive provides more than enough storage space for the target user. Multimedia comes from a five-speed Panasonic DVD-ROM, with Tiny opting for an onboard sound solution that pumps its effects to Tiny's own speaker system. The Power Advantage offers no removable storage, so there is no way to back up the data or transfer large files to another machine.

Graphics come from a WinFast card based on nVidia's Riva TNT2 Ultra chipset, pushing the Tiny to the upper half of the group for 3D performance. Taxan's 17in 750 TCO95 monitor provides very crisp image quality and vibrant colours.

There wasn't much room inside the system case, which could make upgrading a bit of a chore. On offer were two 5.25in and three 3.5in bays, although only one of each was vacant. The motherboard offered similar limited upgradability, with only one PCI and one shared slot free – with the 128MB DIMM sitting in one of the two available slots. Given the space available, the system had been well put together – with cables thoughtfully routed and tied back as much as possible. In the box was a copy of Microsoft's Works Suite, and although a copy of Office would have been better, this is a good compromise. Rounding things off are a three-year on-site warranty, Epson's Stylus 440 printer and a Tiny scanner. The overall package is good, but Elonex has put together a better all-encompassing machine.

PCW DETAILS

Price *£1,677.90 (1,428 ex VAT)*
Contact *Tiny 0800 821333*
www.tiny.com
Good points *Decent monitor, good graphics card*
Bad points *Small case, no removable storage*
Conclusion *Good graphics and display, but other than that the machine never really hits the mark*

Build Quality	★★★
Performance	★★★
Value for Money	★★★
Overall Rating	★★★

Viglen **Homepro P3-600**

The battle of the Pentium III 600MHz machines has been fought between Dell and Viglen in this test and, on balance, it looks as though this London-based assembler has lost out to the buying power of the American monolith.

Both of the machines are very well built with decent system cases and plenty of room for expansion. Viglen's has single 3.5in and 5.25in external bays free and one internal 3.5in bay. One dedicated PCI slot is free, together with a shared and two ISA slots.

The 32MB Matrox Millennium G400 Dual Head card is a welcome addition and, as well as offering fast Direct3D and OpenGL support, it allows you to channel the PC's output to two separate monitors. Viglen has opted for a large 20GB Western Digital hard disk and an LS-120 drive for backup. A 10-speed Pioneer DVD-ROM combined with the fast processor and Matrox graphics card plays DVDs without dropping any frames, while the Viglen-badged ADI monitor is a decent shadow-mask model, with a fairly good display. The maximum resolution is a bit below other comparable 17in monitors that we have seen, but that is not a huge issue. Also included is a US Robotics modem and a Microsoft Sidewinder Joystick.

The software bundle in both systems is exactly the same – Microsoft Works Suite 99 – and will do for most people, although we would have preferred to have seen a fully featured office suite from both Dell and Viglen.

Overall this is a good machine that comes with an impressive three-year on-site warranty. However, the Dell edges ahead because of its Zip 250 rather than an LS-120 drive and for coming in a bit cheaper.

PCW DETAILS

Price *£1,702.57 (£1,449 ex VAT)*
Contact *Viglen 0181 758 7000*
www.viglen.co.uk
Good points *Fast processor, excellent warranty*
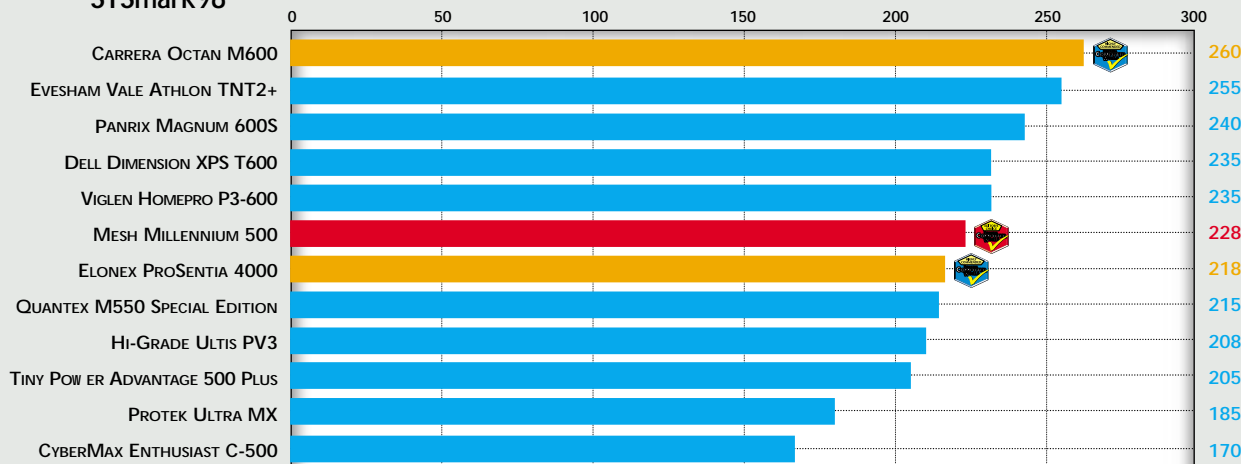**Bad points** *Removable storage, monitor could be better*
Conclusion *A fairly good system but it's eclipsed by the competition*

Build Quality	★★★★★
Performance	★★★★
Value for Money	★★★
Overall Rating	★★★

SYSmark98

Model	Score
CARRERA OCTAN M600	260
EVESHAM VALE ATHLON TNT2+	255
PANRIX MAGNUM 600S	240
DELL DIMENSION XPS T600	235
VIGLEN HOMEPRO P3-600	235
MESH MILLENNIUM 500	228
ELONEX PROSENTIA 4000	218
QUANTEX M550 SPECIAL EDITION	215
HI-GRADE ULTIS PV3	208
TINY POWER ADVANTAGE 500 PLUS	205
PROTEK ULTRA MX	185
CYBERMAX ENTHUSIAST C-500	170

3DMark99 Max

Model	Score
DELL DIMENSION XPS T600	5583
PANRIX MAGNUM 600S	5534
VIGLEN HOMEPRO P3-600	5174
MESH MILLENNIUM 500	5093
TINY POWER ADVANTAGE 500 PLUS	4959
HI-GRADE ULTIS PV3	4779
QUANTEX M550 SPECIAL EDITION	4653
PROTEK ULTRA MX	4370
ELONEX PROSENTIA 4000	4205
CARRERA OCTAN M600	3703
EVESHAM VALE ATHLON TNT2+	3149
CYBERMAX ENTHUSIAST C-500	1406

How we did the tests

■**SYSmark measures** the time it takes a PC to perform tasks in 14 common office and content-creation apps. Each test is run three times to ensure consistency. Tests include:
☞ **Office productivity:** CorelDraw 8, Excel 97, NaturallySpeaking 2.02, Netscape Communicator 4.05, OmniPage Pro 8.0, Paradox 8, PowerPoint 97 and Word 97.
☞ **Content creation:** MetaCreations Bryce 2, Avid Elastic Reality 3.1, Macromedia Extreme 3D 2, Photoshop 4.01, Adobe Premiere 4.2, and XingMPEG Encoder 2.1.
■**3DMark99 Max** is an instruction-set optimised version of 3DMark99 from Futuremark Corporation, which tests the 3D capabilities of PCs. When applicable, the suite of tests will draw on AMD's 3DNow! or Intel's KNI instruction sets. It uses a Real World DirectX 6.1 3D game 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 tests are performed at 1,024x768 resolution in 16bit colour depth with the test suites set to loop three times. The higher the score, the better the result. However, due to the implementation of instruction-set optimisation, the results from the original 3DMark99 and the Max version are not comparable. See www.3dmark.com.

Table of features

MANUFACTURER	CARRERA	CYBERMAX	DELL	ELONEX	EVESHAM VALE
MODEL	OCTAN M600	ENTHUSIAST C-500	DIMENSION XPS T600	PROSENTIA 4000	ATHLON TNT2+
Price ex VAT (inc VAT)	£1,399 (£1,643.83)	£899 (£1,056.33)	£1,299 (£1,526.32)	£1,699 (£1,996.33)	£1,507.90 (£1,771.58)
Telephone	0181 307 2800	01462 636 600	0870 152 4850	0800 037 4466	0800 038 0800
Fax	0181 307 2857	01462 632 600	01344 665 590	0181 452 7444	01386 769601
URL	www.carrera.co.uk	www.cybmax.co.uk	www.dell.co.uk	www.elonex.co.uk	www.evesham.com
HARDWARE SPECS					
Processor	AMD Athlon 600MHz	Intel Celeron 500MHz	Intel Pentium III 600MHz	Intel Pentium III 550MHz	AMD Athlon 600MHz
RAM/type	128MB/SDRAM	128MB/SDRAM	128MB/SDRAM	128MB/SDRAM	128MB/SDRAM
Occupied RAM slots/spare RAM slots	1/2	1/1	1/2	1/2	1/2
Maximum memory in this configuration	640MB	384MB	640MB	640MB	640MB
Maximum memory supported by motherboard	768MB	512MB	768MB	768MB	768MB
Hard disk (manufacturer and model)	IBM Deskstar	Western Digital Caviar 136AA	IBM Deskstar	Fujitsu MPE3204AT-E	Maxtor 5120
HD size/interface	13.5GB/EIDE	13.6GB/EIDE	13.6GB/EIDE	20.4GB/EIDE	20GB/EIDE
Storage drive (manufacturer and model)	Yamaha CD-RW	Panasonic Zip Drive	Iomega Zip Drive	HP Surestore 8210i CD-RW	Iomega Zip Drive
Size of storage drive media	650MB	100MB	250MB	650MB	100MB
Storage drive interface	SCSI	EIDE	EIDE	EIDE	EIDE
MOTHERBOARD COMPONENTS					
Motherboard manufacturer	Asus	Biostar	Intel	MSI	MSI
L2 cache	512K	128K	512K	512K	512K
EXPANSION AND I/O					
No of 3.5/5.25in bays	3/4	5/4	4/2	4/3	4/3
No of free 3.5/5.25in bays	1/2	3/2	2/1	2/1	2/1
No of PCI/ISA/shared slots	4/0/1	3/0/0	4/0/1	4/1/1	4/2/1
No of free PCI/ISA/shared slots	1/0/1	2/0/0	2/0/1	1/1/1	2/2/1
No of USB/Serial/Parallel/PS2	2/2/1/2	2/1/1/2	2/2/1/2	2/2/1/2	2/2/1/2
MULTIMEDIA					
CD-ROM (manufacturer and model)	Panasonic DVD	Toshiba DVD M1212	Hitachi GD-5000 DVD	Sony DDU 220E DVD	Pioneer DVD114
CD-ROM speed/Interface	32x/EIDE	32x/EIDE	40x/EIDE	32x/EIDE	40x/EIDE
Sound card manufacturer	Creative Labs	Onboard	Creative Labs	Aureal Semiconductor	Creative Labs
Sound card model	SoundBlaster Live! 1024	Onboard	SoundBlaster Live! Value	Sonic Vortex II	SoundBlaster PCI 128
Speakers (manufacturer and model)	Altec Lansing ACS54	Altec Lansing ACS45.1	Altec Lansing ACS340	C'bridge Soundworks PC works	Creative SBS20
Graphics card (manufacturer and model)	Guillemot Cougar TNT2 M64	Onboard	Diamond Viper V770 Ultra	WinFast S320	Chaintech Desparado
Chipset	Riva TNT2 M64	Onboard	Riva TNT2 Ultra	Riva TNT2	Riva TNT2 M64
RAM/max RAM/type	32MB/32MB/SDRAM	4MB/System RAM	32MB/32MB/SDRAM	32MB/32MB/SDRAM	32MB/32MB/SDRAM
Graphics card interface	AGP	System Bus	AGP	AGP	AGP
Monitor (manufacturer and model)	Hansol 701A	CyberMax 17in	Dell 1200HS	Elonex MN019A	Taxan Ergovision 755TCO99
Monitor size/max viewable diagonal	17in/16in	17in/16in	19in/17.9in	19in/18.1in	17in/16in
Maximum resolution and refresh	1,280x1,024/60Hz	1,280x1,024/60Hz	1,600x1,200/75Hz	1,600x1,200/85Hz	1,280x1,024/88Hz
OTHER INFORMATION					
Modem (manufacturer and model)	Etech	3Com US Robotics	3Com US Robotics	3Com US Robotics	Diamond SupraExpress
Highest supported modem standard	V.90	V.90	V.90	V.90	V.90
Miscellaneous hardware	Adaptec 2904 SCSI Card	N/A	N/A	Epson Colour 440 Printer, Aver Media TV98 Tuner, AcerScan Prisa 320U USB Scanner, Sidewinder Joystick	N/A
Bundled software	Lotus SmartSuite Millennium	Corel WordPerfect Suite 8	Microsoft Works Suite 99	Microsoft Office 2000 Small Business	Lotus SmartSuite Millennium
Standard warranty	3yr on-site	1yr on-site + 2yr RTB	1yr on-site + 2yr collect/return	1yr on-site + 2yr RTB	3yr on-site
Warranty options	Not supplied	3yr on-site	3yr on-site	5yr on site	Not supplied
Technical support telephone no	0181 307 2830	01462 632 609	0870 908 0800	0181 452 6666	0800 496 4636

	Hi-Grade	Mesh	Panrix	Protek	Quantex	Tiny	Viglen
	Ultis PV3	Millennium 500	Magnum 600S	Ultra MX	M550 SE	Power Advantage 500 Plus	Homepro P3-600
Price	£1,319 (£1,549.83)	£1,199 (£1,408.83)	£1,799 (£2,113.83)	£680.85 (£800)	£1,099 (£1,291.33)	£1,428 (£1,677.90)	£1,449 (£1,702.57)
Tel	0181 532 6100	0208 208 4706	01132 444 958	0870 442 0888	01438 224 444	0800 821 333	0181 758 7000
Fax	0181 532 6101	0208 208 4493	01132 444 962	0870 442 0666	01438 224 224	01293 822 514	0181 758 7080
Web	www.higrade.com	www.meshplc.co.uk	www.panrix.com	www.protekeurope.com	www.qtx.co.uk	www.tiny.com	www.viglen.co.uk
Processor	Intel Pentium III 500MHz	AMD Athlon 500MHz	AMD Athlon 600MHz	Intel Pentium III 450MHz	Intel Pentium III 550MHz	Intel Pentium III 500MHz	Intel Pentium III 600MHz
Memory	128MB/SDRAM	128MB/SDRAM	128MB/SDRAM	128MB/SDRAM	128MB/SDRAM	128MB/SDRAM	128MB/SDRAM
	1/2	1/2	1/2	1/2	2/1	1/1	1/2
	640MB	640MB	640MB	640MB	384MB	384MB	640MB
	768MB	768MB	768MB	768MB	768MB	512MB	768MB
Hard drive	IBM Deskstar	Western Digital W DAC31300	IBM Deskstar	Fujitsu	Western Digital Caviar 1722AA	Western Digital 7200rpm	Western Digital WD205BA
	22GB/EIDE	13GB/EIDE	34GB/EIDE	8.4GB/EIDE	17.2GB/EIDE	18GB/EIDE	20GB/EIDE
	N/A	Philips CD-RW -200	Sony CD-RW	N/A	Sony CD-RW CRX100E	N/A	Panasonic LS-120
	N/A	650MB	650MB	N/A	650MB	N/A	120MB
	N/A	EIDE	EIDE	N/A	EIDE	N/A	EIDE
Motherboard	Asus	MSI	Asus	QDI	Biostar	MSI	MSI
Cache	512K	512K	512K	512K	512K	512K	512K
	4/3	4/3	4/3	2/3	5/4	3/2	4/2
	2/2	2/1	2/1	1/2	3/2	1/1	2/1
	3/2/1	4/1/1	4/0/1	4/3/1	3/2/1	2/0/1	3/2/1
	1/2/0	2/1/1	3/0/1	2/3/1	1/2/1	1/0/1	1/2/1
	2/2/1/2	2/2/1/2	2/2/1/2	2/2/1/2	2/2/1/2	2/2/1/2	2/2/1/2
DVD	Hitachi DVD GD2500	Pioneer DVD-114	AOpen DVD 9632	Samsung DVD	Toshiba DVD M1212	Panasonic 8584 DVD	Pioneer DVD 114
	32x/EIDE	40x/EIDE	32x/EIDE	36x/EIDE	32x/EIDE	32x/EIDE	32x/EIDE
Sound	Creative Labs	Creative Labs	Onboard	Creative Labs	Aureal Semiconductor	Onboard	Creative Labs
	SoundBlaster Live! Value	SoundBlaster Live! 1024	Onboard	SoundBlaster PCI 128	Vortex II PCI	Onboard	SoundBlaster Live! 1024
Speakers	Diamond Promedia 4030	PC Works 4-Point Surround	Voyager	2x Generic 80w	Altec Lansing ADA 305	Tiny cpr-50	Altec Lansing ADA880
Graphics	Matrox Millennium Dual Head	Matrox Millennium Dual Head	Matrox Millennium Max DH	3dfx Voodoo3 3000	3dfx Voodoo3 3000	Winfast Riva TNT2	Matrox Millennium DH
	G400	G400	G400	Voodoo3	Voodoo3	Riva TNT2 Ultra	G400
	32MB/32MB/SDRAM	32MB/32MB/SGRAM	32MB/32MB/SDRAM	16MB/16MB/SDRAM	16MB/16MB/SDRAM	32MB/32MB/SGRAM	32MB/32MB/SDRAM
	AGP	AGP	AGP	AGP	AGP	AGP	AGP
Monitor	Sampo 812R	Taxan Ergovision 975 TCO99 with USB hub	Sony 210ES	Mag D700	Quantex XP175N	Taxan Ergovision 750 TCO95	ADI E55
	19in/18in	19in/18in	17in/16in	17in/16in	17in/16in	17in/15.8in	17in/16in
	1,600x1,200/75Hz	1,600x1,200/75Hz	1,600x1,200/60Hz	1,280x1,024/120Hz	1,600x1,200/75Hz	1,600x1,200/68Hz	1,152x864/60Hz
Modem	Accord 56K	Diamond SupraExpress	Diamond Supra Express	Motorola PCI 56K	3Com US Robotics	Etech	3Com US Robotics
	V.90	V.90	V.90	V.90	V.90	V.90	V.90
Other	Pro-Link TV Tuner MS Sidewinder gamepad	N/A	N/A	N/A	N/A	Epson 440 printer, Tiny 300dpi scanner, MS gamepad	MS Sidewinder Joystick
Software	Lotus SmartSuite Millennium, Tomb Raider III, Half-Life	Corel WordPerfect Office 2000	Lotus SmartSuite Millennium	Corel WordPerfect Suite 8	Corel WordPerfect Suite 8	Microsoft Works Suite 99	Microsoft Works Suite 99
Warranty	1yr on-site + 2yr RTB	1yr on-site RTB	1 on-site + 2yr RTB	1yr on-site + 4yr RTB	1yr on-site + 2yr RTB	3yr on-site	3yr on-site
	3yr on-site	3yr on-site	3yr on-site	Not supplied	3yr on-site	5yr on-site	Not supplied
	0181 532 6199	0181 208 4795	01462 896 599	0870 444 0101	0845 359 9559	0870 160 6050	0181 758 7053

Editor's **Choice**

We gave our award-winning manufacturers a very open-ended invitation this month, and it was interesting to see their views on what would make the best Christmas PC. We received PCs covering the whole spectrum – from Protek's £680.85 offering to the £1,799 machine from Panrix. It was good to see that the Athlon has been well supported here, with our benchmark tests confirming once again that it is faster than equivalently-clocked Pentium III processors. It was also interesting that so many manufacturers included some form of backup as standard – of particular note was the number of CD-RW drives. 3D support was also well catered for, with a version of the TNT2 chip being the most popular addition.

Incidentally, in case you're thinking that our numbers don't add up, and that more companies won awards in the last

▲MESH'S MILLENNIUM 500 PROVED ITSELF TO BE THE BEST OF THE BEST – BY MATCHING A WELL-ROUNDED SYSTEM WITH AN AFFORDABLE PRICE

extremely well-rounded machine at a very attractive price. Opting for a slower processor has enabled Mesh to give us an excellent 19in Taxan shadow mask monitor, a Matrox Millennium G400 dual-head graphics card and a Philips CD-RW drive, and all for only £1,199 ex VAT. All in all, it's the clear winner of our Editor's Choice award this month.

☞**If you're after more** speed, however, you will find our first Highly Commended machine more suitable. The Athlon 600MHz inside Carrera's Octan M600 helped it secure the fastest SYSmark score. This, together with a SCSI Yamaha CD-RW, a three-year on-site warranty and a low price of £1,399 ex VAT helped it to beat the competition. In order to get the most out of your machine, though, you'll need to spend an extra £50 to upgrade to a TNT2 Ultra graphics card, as its 3DMark score was depressed by the use of a TNT2 M64 card. If you're prepared to pay a bit more then you'll get an exceptional, future-proofed system.

HIGHLY COMMENDED
PERSONAL COMPUTER WORLD

▲ THE ATHLON 600MHZ CHIP INSIDE THE CARRERA OCTAN M600 HELPED IT WIN THE SYSMARK TEST

year than supplied machines, then you're right: Armari, Atlantic, Dan Technology, Lexon, Mertec, New Century Computers, Time Computer Systems and Watford Electronics were all invited but did not submit machines.
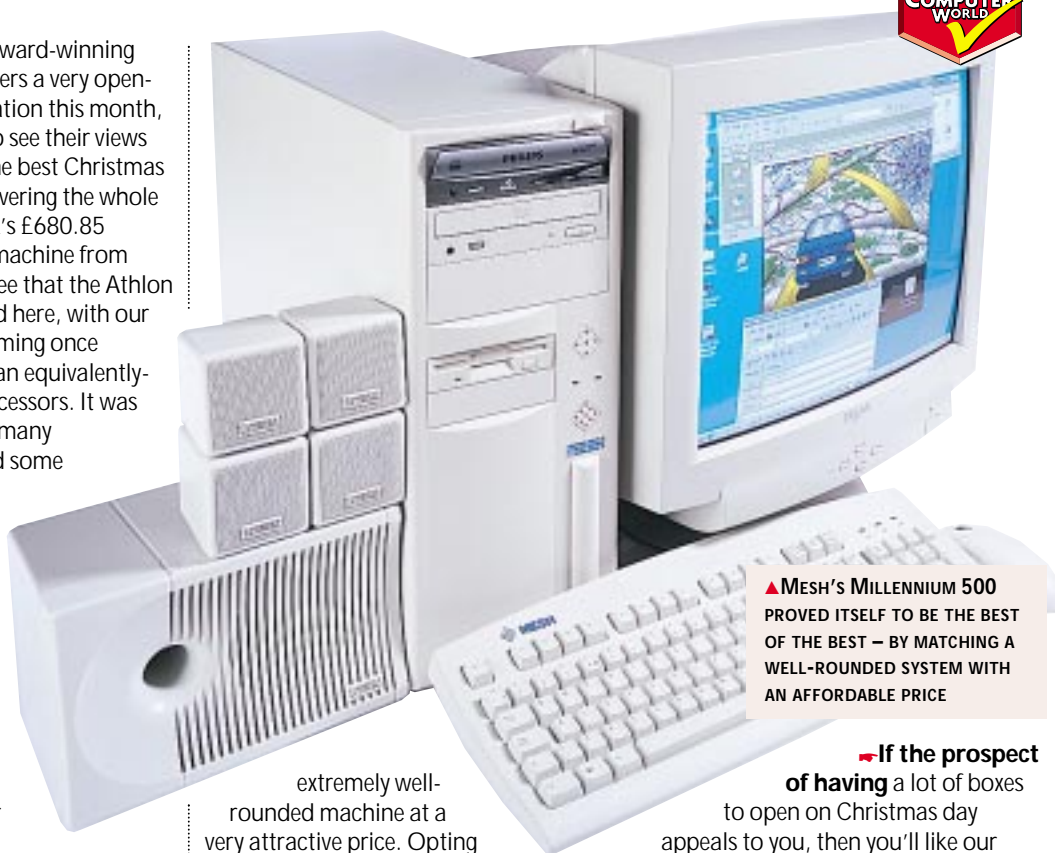
☞**The best of the best** clearly came from Mesh with its Millennium 500, which would make a great Christmas present. Mesh has come up with an

☞**If the prospect of having** a lot of boxes to open on Christmas day appeals to you, then you'll like our second Highly Commended machine – Elonex's ProSentia 4000. For £1,699 ex VAT, a Pentium III 550 processor, HP CD-RW and a 19in monitor may seem a little expensive, but you get an awful lot of little extras that will make

HIGHLY COMMENDED
PERSONAL COMPUTER WORLD

◄ELONEX'S PROSENTIA 4000 COMBINES A FAST MACHINE WITH A STACK OF PERIPHERALS

Christmas day a bit more fun. When you add a scanner, printer, TV tuner, joystick and Microsoft Office 2000 Small Business edition to the equation, the price seems a lot more reasonable. For those of you who don't own any of these peripherals and want to combine them with a well-built, fast PC, this is a good buy.