

The premier league

The 1996 *What PC?* PC and Printer Awards cover a diversity of leading personal computers and peripherals. In this section we spotlight the best in PC technology – from palmtops to multimedia desktops

What PC? And Software's annual awards represent our choice of the best hardware and software we've come across over the past 12 months. Each of the 14 hardware award categories covered in this issue consists of a review of the winning product plus two runners-up, selected by our regular contributors and the in-house editorial team. In most cases, each product has received at least a Recommended if not a Best Buy in a *What PC?* review over the past year.

The rise of the Pentium

This period has seen some big changes in the PC world, of which the most visible was the introduction of Windows 95, and a general move towards Intel's Pentium processor as the standard for both home and business use. Both phenomena are aspects of a fundamental evolution in the underlying technology, as the basic unit of data management increases from 16 to 32 bits.

Because 32-bit computing needs both power and memory, a DX4/100 with 8Mb of Ram is considered the minimum for Windows 95. This renders the 386 processor effectively obsolete, and it does not look as though it will be long before the 486 goes the same way in the face of the Pentium.

Although companies like Nexgen and Cyrix have come up with credible alternatives to the Pentium, it has been a good year for Intel. The company has kept its processor ahead of the game with repeated price cuts and the constant introduction of newer, faster versions. Intel's PCI (Peripheral Component Interconnect) 32-bit bus architecture has also proved immensely successful, rapidly overtaking the earlier Vesa Local Bus design and establishing itself as the industry standard for Pentium motherboards.

As if this were not enough, Intel's Triton 'glue logic' chipset has emerged as a front-runner, providing the supporting functions that link the processor, the memory and the other system peripherals together in a co-ordinated whole. Triton helps get the best out of Pentium-class

processors, but two other developments have boosted desktop performance even further.

The first is EDO (Extended Data Out) memory and the second is synchronous, pipeline burst secondary cache. EDO Ram makes data available more rapidly to the system by holding it open for access for longer than the older type of memory, while synchronous cache is more tightly and efficiently bound to the precise data requirements of the processor itself.

Taken together, along with an improved hard disk interface specification that removes the size limits imposed by the older IDE standard, these improvements have taken the PC a long way forward in a relatively short time. When you add the new Windows 95 interface with its document-centered approach, plug-and-play auto-configuration capabilities and improved looks, it is easy to see why the PC's arch-rival, the Mac, has been having an increasingly thin time of things lately. The Mac seems to be retreating to its original strongholds in design, DTP and education, but with the brave new PC barking at its heels we cannot help but wonder how long it will hold out even in those sectors.

Multimedia PCs

Multimedia-capable PCs are now seen as home computers as well as tools for business, and several attempts have been made to rework the traditional design to entice domestic users. There has been an all-in-one case design, and various attempts at duplicating household electronics like TV and radio, as well as the more obvious audio CD player.

The strength of interest in the Internet, or more precisely the World Wide Web, has also stimulated the home market, and PCs with modems and Web browser software bundled are increasingly common. None of these has as yet been a runaway success, but overall sales to the domestic market have remained very healthy.



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A family multimedia PC should, by definition, be capable of coping with anything a typical family requires. Whether it is producing letters on a word processor, creating newsletters on a DTP program, working out finances on a spreadsheet, or playing games, a family multimedia PC should do them all, and do them well.

We have come across many machines that fit this bill over the past year, but for this award, we have chosen a machine from a long-established manufacturer with a reputation for solid, well-built machines. The Viglen Performance 120 wins this year's best family multimedia PC award.

Viglen is based in West London and has several regional support centres. It is one of the UK's leading suppliers of PCs and all of its machines are built to order. Each system comes with 'lifetime' access to a technical hotline and a 12-month back-to-base warranty.

The Performance 120 uses a 120MHz Pentium processor and has 8Mb of Ram and a 1Gb hard disk – plenty of power and storage to do full justice to most applications. Inside the desktop case, the cables are neatly tied back, making adding or removing components straightforward. There are 8Mb of Ram on two Simms leaving two free, and two Isa and three PCI slots free (although one of each is a shared slot). There are also two free 5¼in drive bays (one holds the quad-speed CD-Rom drive) so there is room for other devices, such as a tape streamer.

The Cirrus Logic video card has 1Mb of Ram, which gives 24-bit (16.7 million) colour at 640x480, 16-bit (65,000) at 800x600 and 8-bit (256) at 1,152x864. The Viglen Envy-15P monitor gives a sharp image and a rock-steady 75MHz

Family multimedia PC Viglen Performance 120



refresh rate at all but the highest resolution. A true Creative Labs 16-bit Soundblaster card is fitted so all games and applications requiring a Soundblaster-compatible sound card will work without problems.

Setting up a PC for the first time can be difficult, but the Performance 120's comprehensive documentation is a big help. A *Getting Started* guide tells you how to connect the various parts, with the rest of the user manuals stored in a ring binder. Windows 95 is pre-installed with the setup files stored on the hard disk and a separate CD-Rom included as well. Bundled software

includes MS Works 95, MS Publisher and a variety of other Microsoft multimedia titles.

The Viglen Performance 120 is an excellent all-rounder and ideal for family use. Its specification means it will not be out of date as soon as you buy it.

○ £1,596 with VAT
○ Viglen: 0181 758 7000

Viglen Performance 120					
Build quality	1	2	3	4	5
Performance	1	2	3	4	5
Features	1	2	3	4	5
Value for money	1	2	3	4	5

Apple PowerMacintosh 7200/90

Computers suitable for use by the whole family aren't just limited to PC compatibles – the Apple Macintosh is just as capable.

The 'easier to use' tag may not be as true now Windows 95 has appeared, but the Macintosh operating system has been around longer and is certainly more integrated than Microsoft's. This is particularly evident when installing new hardware. Macs do not have the same breadth of software as the PC, but there is still a vast amount available.

The PowerMacintosh 7200/90 is an excellent general-purpose machine and uses the PowerPC processor, which is much faster than the older Motorola processors. The disadvantage is it can't run all the old Mac applications. The machine is roughly equivalent to a Pentium 90 PC. Its 8Mb of Ram, 500Mb hard disk, quad-speed CD-Rom drive, 16-bit sound and PCI expansion slots make it equally PC-like, as does the price of £1,257 (excluding a monitor but with VAT).
Apple: 0181 569 1199



Olivetti Envision

The Olivetti Envision represents something of a departure from traditional PC designs, and it is the only machine we've seen that wouldn't look out of place in someone's living room. The Envision's system unit looks more like a VCR than a computer, what with its matt-black finish, LED display and remote-control handset. This image is further boosted by the fact that the Envision is designed to be used with a normal television, rather than a monitor. Place it under the television and you can use it from the comfort of an armchair, thanks to the wireless keyboard with built-in trackball.

The Envision range starts with a DX4/100 processor with 8Mb of Ram and a 630Mb hard disk for £1,643 with VAT. Sound is built in and the quad-speed CD-Rom drive can be used to play video CDs as well standard CD-Roms. On the down side, resolution is limited to 640x480 on a television screen, and it is rather expensive, particularly as a monitor is not included in the price.

Olivetti: 0800 447799



Professional multimedia PC Dan Dantium 133

The market for PCs for leisure use has ballooned of late, but people are still buying them for more serious applications. If you want a PC that can hold its own in a business environment, then you should be looking for one that has sufficient power and features not to be out of date in a couple of years.

Of the machines we've looked at over the course of the year, the model which offers the best, no-compromise combination of price, performance and features is the Dan Dantium 133.

Dan Technology is a London-based company that started supplying computers direct six years ago. Its premises are near Wembley Stadium and incorporate a technical support centre and a showroom, where customers can try out equipment for themselves. Dan recently opened a branch office in Leeds and this also has a showroom and technical support centre.

Based on a Pentium 133, the Dantium's performance is on a par with other similar machines, and its 16Mb of Ram and 1Gb hard disk are ideal for meeting the increased demands of Windows 95.



The Dan 15in monitor gives a bright, sharp image and works extremely well in conjunction with the ATI Mach-64 video card.

The system includes a quad-speed CD-Rom drive and a Soundblaster AWE32 sound card. The sound card may be a little over the top for a business machine, but it is possibly the best one available and is guaranteed to do full justice to any application that involves Midi files.

The Dantium 133 also includes a 14,400bps modem (with a pre-configured setup to dial into Dan's technical support BBS) and a television tuner. Again, the latter may seem unnecessary, but any business that requires up-to-the-minute news, for example, will find it invaluable as it can display a television image in a small window in the corner of the screen.

Even more useful is the inclusion of a tape streamer. The 1Gb tape streamer fitted to the Dantium 133 simplifies the whole process of backing up and allows regular backups to be made with little or no user intervention (assuming a program scheduler is used); a single tape can store the contents of the entire hard disk.

Dan Technology has been building reliable, well-specified PCs for several years now, and the Dantium 133 is built to its typically high standards. Replete with features, it offers everything a Soho (Small Office/Home Office) user could want – particularly peace of mind.

○ £2,196 (incl VAT)
○ Dan: 0181 830 1100

Dan Dantium 133					
Build quality	1	2	3	4	5
Performance	1	2	3	4	5
Features	1	2	3	4	5
Value for money	1	2	3	4	5

Colossus P133 System 96

If raw speed is your main concern, then the Colossus P133 System 96 may well be what you are looking for. In our last fast Pentium group test, the Colossus did extremely well in our benchmarks and was by far the fastest 133MHz machine.

Speed isn't everything, of course, but the rest of the Colossus's components are more than up to scratch. The 16Mb of EDO Ram and 2Gb hard disk perfectly complement the speed of the processor, and the midi-tower case has plenty of room for expansion.

Multimedia features are also above average – the Diamond Stealth 64 video card with 2Mb of V-Ram is a capable performer, and the 15in Hyundai Deluxscan monitor gives an excellent image. Sound comes from the Orchid Nusound PNP sound card with wavetable synthesis, and a six-speed CD-Rom drive gives an extra performance boost. The price, including Windows 95, Novell PerfectOffice and a 28,800bps modem, is £2,466 including VAT.

Colossus: 01707 258899



Viglen Ultimate 150 Multimedia PC

The same group test in which the Colossus excelled also spotlighted another superb performer – the Viglen Ultimate 120

Multimedia PC. Although only a 120MHz Pentium-based system, it still managed to outperform other machines that had 133MHz processors. The desktop case has plenty of room inside for expansion and the disc-clips on the CD-Rom tray mean that it can also be stood on its side when space is limited.

Since the review, however, Viglen has upgraded the specification of this machine. It still has 16Mb of Ram, but the hard disk is now a larger 1.6Gb and the 120MHz processor has been replaced by a 150MHz one. Sound is provided by an integrated 16-bit Soundblaster card and the excellent Diamond Stealth 64 video card with 2Mb of V-Ram works well with the Viglen 15in monitor. The PC, with six-speed CD-Rom drive, 14,400bps modem, Windows 95 and bundled software, costs £2,583 including VAT.

Viglen: 0181 758 7000





Bargain-basement PC

Mesh Classic 75

Seriously cheap PCs are not as rare as you might think. If you take a stroll down Tottenham Court Road in London, or look through the back pages of any computer magazine, you'll find machines at prices you didn't think possible. Buying such a PC, however, has its risks, as low prices usually mean costs are being cut somewhere along the line.

So, for this award, we've only looked at machines from established companies which we know are capable of providing reliable, well-built machines with sound

after-sales support. Of these, Mesh is a company that has consistently supplied well-made PCs that don't cost the earth.

The Mesh Classic 75 is astonishingly good value for money. It has a 75MHz Pentium processor, 8Mb of Ram, a 850Mb hard disk drive and a one-year on-site warranty, all for £899 (excluding VAT).

Supplied in a desktop case, the Classic 75 has plenty of room inside for expansion. There are three PCI and three Isa slots free (with one shared between each) and two free 5¼in drive bays. The 8Mb of Ram is provided on two Simms, leaving



two slots free. A tangle of cables spoil the otherwise tidy internal layout, but at least they don't get in the way of anything important.

The SiS 6205 64-bit video card is integrated onto the motherboard, which means there is one more free PCI slot than usual. It can display 24-bit colour at 640x480, 16-bit at 800x600 and 8-bit at 1,024x768. The 14in Microscan 3V/ADI monitor gives a pleasing picture, and its digital controls allow the image to fill the whole screen.

The quad-speed CD-Rom is made by Goldstar and the 16-bit sound card is a Vibra16 from Creative Labs. Even the keyboard is a well-made Cherry unit and the mouse is a typically excellent Microsoft device. Of course, something has got to give with a machine of this price and, in this case, it's the software – apart from Windows 95, there isn't any. This isn't really a problem, however, because at least you aren't getting a bundle of cut-price titles that you probably wouldn't use anyway.

In addition to the manuals supplied for the various bits of hardware, Mesh also provides its own user manual. Well-written, with little in the way of jargon, it describes the operation of the various components clearly and gives advice on solving simple set-up problems.

Mesh has consistently supplied well-built, well-specified machines at prices that seem too good to be true. Pinch yourself, however, and the Mesh Classic 75 is still there, and it really is a bargain.

○ £1,056 (incl VAT)

○ Mesh: 0181 452 1111

Mesh Classic 75

Build quality	1	2	3	4	5
Performance	1	2	3	4	5
Features	1	2	3	4	5
Value for money	1	2	3	4	5

Carrera Panther P75

Carrera is another company that somehow manages to produce well-built machines that, despite being cheap, do not sacrifice quality for the sake of price. The Panther P75 is one such machine. Based on a Pentium 75 processor, the Panther 75 has 8Mb of Ram and a 620Mb hard disk and costs just £999 excluding VAT (£1,173 with VAT).

The mini-tower case is sturdy and has plenty of room for expansion. There are three PCI and four Isa slots free and two free drive bays (one 3½in and one 5¼in). An awkward motherboard layout makes access to the two free Simm slots a little tricky but not totally impossible.

A quad-speed CD-Rom drive is also supplied but, unfortunately, there isn't a sound card. There is, however, an excellent 14in Samsung Syncmaster 3 monitor, which complements the Graftixstar 400 video card perfectly. Windows 95 is pre-installed and MS Works for Windows 95 is also supplied.

Carrera: 0171 830 0586



Mr PC P75 Win95 Business PC

When we awarded the Mr PC Omega DX4-100 a Best Buy in last January's bargain-basement PC group test, the feature that impressed us most was its sheer value for money. The DX4/100 machine had 8Mb of Ram, a 544Mb hard disk, a quad-speed CD-Rom drive, a sound card and speakers – all for just under £1,000 (£799 excluding VAT).

Things have moved on since then and the DX4-100 is no longer available. Mr PC's replacement entry-level machine, however, is just as great a bargain.

The P75 Win95 Business PC has a Pentium 75 processor, 8Mb of Ram, a 850Mb hard disk, a 64-bit video card, a quad-speed CD-Rom drive and a sound card for £2,079 (incl VAT). Windows 95 is also supplied, as is a selection of Lotus applications.

If you're worried that Mr PC isn't an established company, don't. It is, in fact, part of the larger Granville Technology Group, which also includes the likes of MJN and Colossus.

Mr PC: 01282 777888



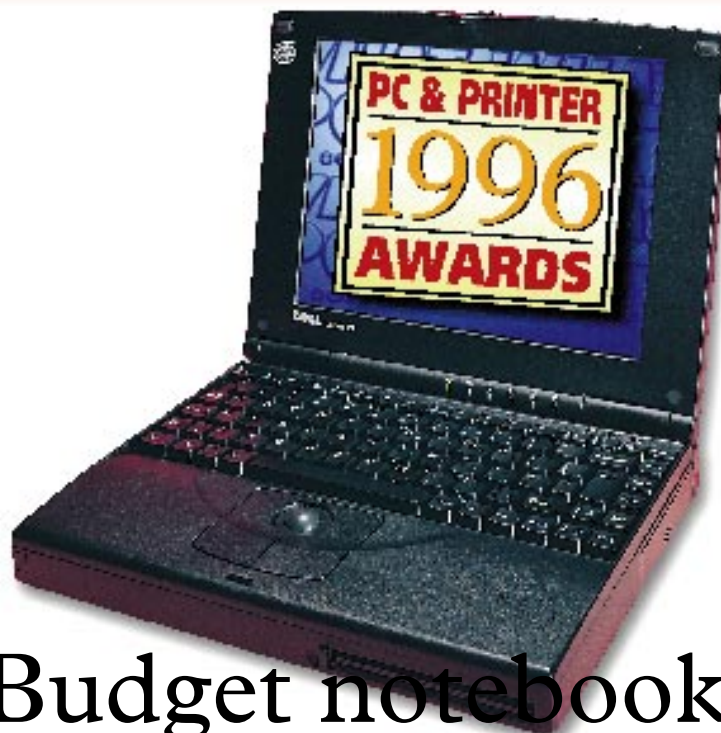
A budget notebook can rapidly become rather expensive if it needs either major upgrading to get it up to speed or if it repeatedly goes wrong. With these caveats in mind we looked for a product that offered sufficient performance to be going on with as well as a convincing build quality. We came up with the Dell Latitude XP 475D, which not only fulfils both the aforementioned criteria, but also comes with the quality after-sales support network associated with a brand-name product.

Like the rest of the Latitude range of portables, the 475D is finished in a satin black, which looks smart and affords a secure grip on the case. The machine has a fairly typical 11in wide by 8.75in deep footprint and measures 2in thick, which is par for the course for a colour notebook. It is lighter than average at only 6.2lb, but solidly built; the screen protecting the outer surface of the lid and the palmrest are firm and unyielding.

The Intel 486DX4/75 processor is backed up by 8Mb of Ram (expandable to 32Mb) and a 420Mb hard disk, which gives it the necessary power and storage to cope adequately with current software but without imposing a swingeing drain on the battery.

There is evidence of thoughtful design: the port covers recess into the case for protection when open, and the PC Card expansion slots are kept dust-free by inserts rather than damageable doors. There are folding feet in the base to tilt the case and improve the typing angle, and the system's removable hard disk is entirely encased to prevent damage by static during handling.

The Latitude has Lithium Ion batteries, which are normally supplied with high-end notebooks. Another feature you don't often



Budget notebook

Dell Latitude XP 475D



find on lower-priced portables is Windows-based power management setup software. Usually you have to access the basic system setup directly to make changes, but with this unit you get the familiar Windows environment. There is a choice of several preset power-saving levels as well as custom settings. The system can run up to five hours on a full charge.

This machine is comfortable to use, with a broad palmrest, centrally positioned trackball and a sensibly laid out keyboard which doesn't confuse you with non-standard function doublings. It also

has a clear, well-lit dual-scan colour screen with a 10.4in diagonal. A TFT version based on a DX4/100 processor is available and costs about £300 more.

A well-designed and solidly made portable with a good screen and keyboard and unusually good battery life.

○ £1,699

○ Dell: 01344 720000

Dell Latitude XP 475D

Build quality	1	2	3	4	5
Performance	1	2	3	4	5
Features	1	2	3	4	5
Value for money	1	2	3	4	5

Toshiba T2130

You can pick up this robust but attractive light-grey notebook for around £1,600, for which you get a 486DX4/75 with 8Mb of Ram, a 520Mb hard disk, the usual dual Type II/single Type III PC Card expansion slot and a 10.4in dual-scan LCD screen. Despite the fact that the T2130 has an integrated power supply, removing the need to carry an external transformer around with you, its 6.8lb weight is less than that of some standard notebooks with a separate 'brick'.

The system has a Nickel Metal Hydride battery pack (NiMH) which fits under the palmrest rather than through a cut-out in the side that effectively weakens the case. Like other Toshibas, it is supplied with the Maxtime Windows-based power management utility, which provides detailed and effective control over how the machine runs on DC.

Although it has now been discontinued, if you hunt around, you can still find – at bargain prices – the earlier T2110 model, which has a 350Mb hard disk, 4Mb of Ram and a mono screen. Toshiba: 01932 841600



CTX Ezbook Gold 586

The Ezbook Gold is based on the Cyrix 5x86c processor running at 100MHz. It comes as standard with 8Mb of Ram, a removable 540Mb hard disk, integrated 16-bit Soundblaster-compatible audio and a larger-than-average PC card slot that can accommodate both a Type II and a Type III card at the same time.

What really sets this machine apart from the average is its 10.4in active-matrix screen. There's nothing unusual about the screen on its own, but to find an active panel on a notebook with a street price of £1,600 is surprising.

The Ezbook is reasonably well made and weighs in at a very acceptable 6.25lb, including its Nickel Metal Hydride (NiMH) battery pack.

Both the screen and keyboard are pleasant to use (the keyboard has the extra Windows 95-specific keys) and the system benefits from having a mousepad rather than the more usual trackball.

CTX: 01923 818461





Mid-price notebook

Zenith Z-Note MX

If you are going to spend around £2,000 on a portable you presumably plan to use it a fair amount. For this reason we wanted realistic specifications coupled with ergonomics that worked, packaged in a format that was flexible and robust but still light enough to be easily transportable.

It was its modularity that initially drew our attention to Zenith Data Systems' Z-Note MX, but the machine comes up to scratch in all the other important areas.

The MX has an angular case with a 11in wide by 8.5in deep footprint. It is 2in thick and weighs

just 6.2lb. The case is rigid, so the lid surface doesn't sag under pressure, which should prevent any accidental damage.

There are three models to choose from, all based on a 75MHz Pentium chip with 8Mb of Ram and 256Kb of secondary cache. The cheapest, the £1,899 version, has a 540Mb hard disk and a dual-scan colour screen; the next is an 810Mb dual-scan version; then there's an 810Mb active-colour model with a SuperVGA screen.

The MX has a Type III PC Card slot that can accept two Type II cards instead of a Type III hard disk



card. The system's Nickel Metal Hydride (NiMH) battery pack fits into a recess next to the floppy drive, which is removable. There are two options here: either the floppy drive can be replaced with a second battery pack, or you can slot the power supply module into the space.

The unit has a wide palmrest with a mousepad set into the middle. There are tilt feet in the base which provide a comfortable typing angle. The £1,899 model has a 10.4in dual-scan screen which produces a clean, even and well-illuminated image with little shadowing.

The MX series has integrated 16-bit audio with a microphone in the palmrest and a pair of stereo speakers set into the top corners of the screen surround. Although the sound quality isn't exceptional, it is acceptable and there are the usual audio outputs for connecting to external speakers or headphones.

Power management setup is done directly from the basic system setup utility, but this can be called up from within Windows and changes are effected immediately. All the usual device timers are present, and there is also a suspend-to-disk function that can be used as a permanent electronic bookmark. With power management enabled, the Z-Note MX will run for around two to two-and-a-half hours.

The Z-Note MX is solid but not heavy and has a good screen and keyboard plus the flexibility of a second battery, floppy disk drive or internal power supply modules.

○ £1,899
○ Zenith Data Systems:
0181 568 5050

Zenith Z-Note MX

Build quality	1	2	3	4	5
Performance	1	2	3	4	5
Features	1	2	3	4	5
Value for money	1	2	3	4	5

Twinhead Slimnote 890CX

Several companies, including Evesham Micros and Watford Electronics, are currently marketing the Slimnote 8 under their own badges, but in the majority of cases the price and specifications are very similar.

The £1,879 Twinhead Slimnote 890CX has a 90MHz Pentium processor, 256Kb of performance-improving secondary cache, 8Mb of Ram and a removable 540Mb hard disk. Additional modularity in the build allows the floppy disk drive to be replaced by a CD-Rom option or a second Lithium Ion battery to extend the operating time.

The Slimnote 890CX has built-in 16-bit audio with stereo speakers, a mousepad rather than a trackball, and an impressive SuperVGA (800x600 resolution) dual-scan colour screen. This produces a clean, well-lit image with a good range of contrast, and the larger Windows desktop is a noticeable and worthwhile improvement over the 640x480 VGA standard.

Twinhead: 01256 811366



IBM Thinkpad 370C

The 370C model of the Thinkpad has a 10.4in colour screen, a 75MHz 486DX4 processor running the show, 4Mb of Ram (expandable to 40Mb), and a range of removable hard disks from the standard 340Mb up to 1.2Gb.

The unit weighs 6.25lb but, like other machines in the Thinkpad range, it is solidly constructed throughout.

In order to avoid weakening the case with cut-outs, the hard disk and Nickel Metal Hydride (NiMH) battery is accessed by raising the palmrest, as is the case with the Toshiba T2130.

Thinkpads are notable for their excellent keyboards, which are almost as pleasant to use as those on standard desktop systems, thanks to large, well-spaced keys and responsive actions. The 370C's black active-matrix display is also above average because of its reduced glare and anti-reflective qualities.

Dealer prices vary, but the basic model Thinkpad 370C should be available from around £1,900.

IBM: 0345 727272



At this level – and price – we wanted to see a portable multimedia system that could effectively replace a desktop in the office and do a fair job of duplicating one on the move.

It wasn't easy to choose a winner in this category as the competition was very strong. On balance we opted for the IBM Thinkpad 760CD – despite its stratospheric price – as it packs in features in an unashamed appeal to users who want everything, except perhaps the bill.

The 760CD weighs 7.4lb (or more, depending on which modules are fitted) which gives a hint that there's plenty inside the box.

The basics are reasonably impressive and wouldn't embarrass a desktop. You get a Pentium 90 processor, 256Kb of secondary cache, 8Mb of Ram and a substantial 1.2Gb hard disk. Our only gripe is that, for the money, 16Mb of Ram would have been nice.

The 760CD has built-in decompression for Mpeg-1 and the new Mpeg-2 standard, and there are input/output ports with adaptors for composite and S-video signals, which suggests the machine is aimed at multimedia authoring and video-editing specialists. It also has integrated 16-bit audio, with a reasonably powerful pair of stereo speakers on either side of the palmrest.

When the lid is opened the hinge mechanism engages with the keyboard and raises it half an inch or so at the rear to provide a comfortable typing angle. The keyboard itself is the usual excellent Thinkpad design, with a nearly full-sized alphanumeric pad. The keyboard baseplate can be disengaged and opened like a car bonnet for access to the machine's Lithium Ion battery, removable hard disk and the options module compartment. This usually contains the floppy drive, but you



Luxury notebook IBM Thinkpad 760CD



can replace it with the supplied quad-speed CD-Rom unit, a second battery or another hard disk.

What really sets the Thinkpad apart from the pack is its huge 12.1in active-matrix SuperVGA screen. Not only can the panel produce a roomy 800x600 resolution Windows workspace, it can do it at 65,536 colours – like a normal PC.

Power management setup is handled by a Windows-based utility with a range of preconfigured power-saving levels as well as custom settings. Running time varies considerably depending on how much you use the audio facilities and

CD-Rom drive, with charge life varying between less than one-and-a-half hours to about two-and-a-half.

Topnotch build, with a superb screen and keyboard and packed with features. The 760CD closes the gap between portables and desktops.

£5,745

IBM: 0345 727272

IBM Thinkpad 760CD

Build quality	1	2	3	4	5
Performance	1	2	3	4	5
Features	1	2	3	4	5
Value for money	1	2	3	4	5

Toshiba Satellite Pro 400CDT

The Satellite Pro is built around a Pentium 75 processor with 8Mb of fast EDO Ram as standard and a 650Mb hard disk. The base configuration costs £3,369.5. The machine has integrated 16-bit audio with a relatively powerful monaural speaker and a 10.4in active-matrix screen capable of 16.7 million colours at VGA resolution. It has the same light-grey, rounded case as the 2100-series machines, but it's a little heavier at 7.2lb – although like its predecessors it does have an internal power supply.

As with the Thinkpad, the floppy disk drive can be removed and exchanged for a quad-speed CD-Rom unit, but this time the floppy disk module can be connected externally with a short cable and used when the CD is installed, adding an extra degree of flexibility to the arrangement.

Like the majority of top-end notebooks, the Satellite Pro is powered by Lithium Ion batteries and has a typical running time of around two-and-a-half hours.

Toshiba: 01932 841600



Texas Instruments Travelmate 5200

The new Travelmate 5200 is one of the most powerful notebooks available with a 120MHz Pentium processor to its name.

This is sensibly combined with 8Mb of Ram, 256Kb of cache and a 1.2Gb hard disk, which comfortably matches the specification of many desktop systems.

The price, inevitably, is higher than a similarly-specified desktop, with a recommended retail price of £3,999 – but this does include an excellent 10.4in SuperVGA-capable active-matrix screen.

The usual built-in 16-bit audio is present, along with a monaural speaker and microphone, but you need to buy the multimedia docking station option if you want a CD-Rom and stereo sound. The absence of a CD-Rom helps keep the weight down to 6.7lb, despite the fact that the Travelmate 5200 has not one but two Lithium Ion battery packs (although both are fairly compact).

Texas Instruments: 0181 875 0044





Palmtop computer

Psion 3a

Step into any high-street electronics shop and ask for a hand-held computer and there'll probably be a dozen on the counter. Most of them, however, are little more than glorified diaries. Ask for one that has a full-featured word processor, address book, date planner, powerful spreadsheet and a built-in programming language, and you'll be down to four or five. Ask which has the most software, both commercial and shareware, and if the shop is being honest, only one machine will be left on the counter – the Psion 3a.

For the third year running, the Psion 3a has won the award for the best hand-held computer. The reason? There simply isn't another hand-held that can touch it in terms of sheer number of features.

Its success can be put down to the fact that it really is a computer that will fit into your pocket. About the size of a spectacle case, the Psion 3a has a clamshell casing with a screen in one half and a keyboard in the other.

The Qwerty keyboard is small but, with practice, it is possible to build up a reasonable two-fingered typing speed, and the 480x160



LCD screen is clear with good contrast. Power comes from two AA batteries that slot into the 'hinge' that joins the two halves of the case, and a battery life of around 55 hours is not unusual.

Although the hardware is impressive, it's the software that really makes the Psion 3a stand out from the crowd. The multitasking operating system has a look and feel reminiscent of Windows. Full use is made of graphics and the applications appear in windows with drop-down menus.

The applications have features more usually found on their fully-fledged desktop counterparts. Agenda, the diary program, has daily, weekly and yearly views, and multiple to-do lists. The Word processor is MS-Word 6-compatible and includes templates and search and replace. Other applications include a full-featured spreadsheet with chart plotting, card-file database and digital sound recorder.

Third-party software is also one of the 3a's strong points, thanks largely to the excellent built-in OPL programming language. Memory can be expanded by adding solid-state disks (SSDs), a proprietary system that uses a Dos-compatible filing system. PC connectivity is also a strong point with the PsiWin software and cable kit.

Simple to use and yet extremely versatile, the Psion 3a is the only serious contender if you're looking for a hand-held computer that can all but replace your desktop one.

○ £249.95 (512Kb), £339.95 (1Mb), £399.95 (2Mb); all including VAT
○ Psion: 0171 258 7368

Psion 3a

Build quality	1	2	3	4	5
Performance	1	2	3	4	5
Features	1	2	3	4	5
Value for money	1	2	3	4	5

Sharp ZR-5000

The first thing to strike you about the Sharp ZR-5000 is the quality of its finish – it looks expensive. The screen is large and clear, and although some space is wasted with unnecessary decoration, it makes up for it by being touch-sensitive. Slide the stylus from the case and sketches and doodles can be made, and notes can even be taken on a notepad. There's no handwriting recognition – it's just quicker than using the keyboard.

Alas, software puts the ZR-5000 firmly in the PDA (personal digital assistant) rather than the hand-held computer camp. It's almost perfect and includes a word processor with spell-checker, an address book and a multi-view diary. Links between individual entries can even be made for cross-referencing. Unfortunately, its £399 price tag doesn't get you a spreadsheet or a built-in programming language. The unit does, however, have an infra-red interface and a Type II PCMCIA slot which are useful for information exchange. Sharp: 0161 205 2333



HP Omnigo 100

It may not have the largest screen or the most stylish case of the hand-helds, but Hewlett-Packard's Omnigo 100 is cheap at £290 (incl VAT) and rather sophisticated. Open the clamshell case and you'll be surprised – the screen can be folded right back through 360 degrees to rest on the back of the keyboard. This allows the Omnigo 100 to be held in the palm of your hand, screen upwards, much like a notepad.

Actually, it is a notepad. The screen is touch-sensitive – if you write on it with the stylus, the Graffiti software will turn your hand-written notes into typewritten text. Although this software is remarkably accurate, it isn't as clever as it sounds as you have to write with a simplified alphabet. This takes some of the load off the software and it's not too hard to learn.

The other applications included are useful: a financial calculator, simple word processor, organiser and spreadsheet. A Type II PCMCIA slot is handy for expansion, but there's no infra-red interface.

Hewlett-Packard: 01344 369222



Extra special

The *What PC?* awards for printers and peripherals embrace a wide range of printers, monitors, modems and scanners. Our team has selected the most impressive performers in each category

As far as printers, monitors and modems are concerned, the past year has seen more consolidation of existing technology than new developments. This is far from bad news for the consumer, particularly with printers and modems which have simply got cheaper. It has to be said, though, that the pricing of large monitors has remained fairly static.

The mainstream printer market has settled down into a choice between lasers (or LED page printers) and inkjets, with dot-matrix units now more or less out of the picture. Lasers are often capable of 600dpi (dots-per-inch) resolution, although 300dpi devices still sell, particularly at the budget end of the market. The small, affordable, personal laser has emerged partly as a result of cheaper technologies (using LEDs instead of lasers and PC-based GDI (Graphical Device Interface) rather than building memory and intelligence into the printer itself), but fully-fledged laser printers with their own memory and processors are also now available at very low prices.

The laser/inkjet dilemma

The reduction in prices has made the choice between laser and inkjet more a matter of whether or not you want colour, than a decision based purely on cost. Inkjets still offer the only realistically-priced avenue into colour printing for non-specialists, so they keep selling, despite the increasing number of competitively-priced mono lasers and page printers around. In either case, manufacturers have made a real effort to package their products for the home/small office environment, with smaller footprints, easier setup and maintenance, and friendlier driver software designed to help get the best out of a printer. When you see someone advertising a personal printer, in general this really does mean more than just a low price tag.

Power to your modem

Thanks to a massive surge of interest in the World Wide Web and e-mail, modems have been selling in unprecedented volumes and consequent-

ly have dropped dramatically in price. As a result, unless you are working to a tight budget, there isn't much point in opting for anything less than the current fastest 28,800bps speed. Most offer fax capabilities and an increasing number can also handle voice communications, so your PC can be turned into a sophisticated answering machine or even a telephone – keep an eye out for software that lets you make international calls over the Internet at local rates.

We're not sure how long it will take, but we suspect modems are on the way to becoming an integral part of the PC, in the way that a floppy drive is. After all, the range of on-line services can only grow (and get cheaper to access) and the idea of a PC without a connection to the rest of the world will one day be seen as just as incomplete as a PC without a floppy drive.



Monitor developments

The only real evolution in the world of monitors has been the move towards on-screen control menus, rather than those bewildering arrays of buttons with incomprehensible labels. Sadly, prices have remained much the same, despite the huge ergonomic benefits of upgrading from a 14in or 15in tube to a 17in screen and running Windows in 1,024x768 resolution. General specifications haven't changed much either, but that's not a problem as by this time last year the majority of 17in displays offered the necessary range of setup controls and stable, fast vertical refresh support in high-resolution modes.

The situation will probably stay much the same for the time being, although there are some interesting rumbles in the background about a new process developed by Sony for manufacturing active-matrix screens using polycrystalline silicon. This could lead to affordable, large-diagonal, high-resolution flat-panel displays in a couple of years. No-one who has had to carry a 17in display up a flight of stairs will mourn the passing of the cathode-ray tube.►

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Budget inkjet printer

Epson Stylus 820

A few years ago, if you wanted a cheap printer it was a dot-matrix or nothing. Today, the choice is much wider, thanks to the inkjet printer. When it comes to producing high-quality copies at a low cost, inkjet printers are really the only sensible choice. We've looked at many models over the past year, and the inkjet printer that stands out as offering the best combination of price and print quality is the Epson Stylus 820.

Epson's Stylus range started with the Stylus 800, a printer that

was awarded a *What PC?* Best Buy in April 1993. The Stylus 800 originally impressed us with its near-laser-quality output, something that was attributed to its innovative printing system.

Inkjet printers usually get the ink to squirt onto the page by heating the printhead. Stylus printers, on the other hand, apply an electric current to a piezoelectric crystal to achieve the same result. This system gives the printhead a much longer life and enables the ink reservoir to be replaced independently to the printhead, leading to lower running costs.



The Stylus 820 is relatively compact, but the small footprint is misleading – once the paper support has been clipped to the back of the case and the paper tray folded from under the front, its size is almost doubled. The cut-sheet feeder at the rear can hold up to 100 sheets and the paper-path is relatively flat, allowing a variety of paper thicknesses to be used.

Surprisingly, the maximum 720x720dpi print resolution of the Stylus 820 can be achieved on plain paper, unlike other models that require special coated paper. Even on standard photocopier paper, the unit performs extremely well. Text is crisp with little evidence of ink 'crawl' (due to ink soaking into the page) and graphics are detailed with almost no trace of banding. There is, however, a down side – prints, especially graphics, can take a long time to appear.

Although technically a black-only printer, the Stylus 820 can be upgraded to colour. This involves fitting a new colour printhead and a colour ink-cartridge, with the printer driver taking care of the rest. Unfortunately, this doesn't allow four-colour printing – colour prints create black by mixing cyan, magenta and yellow.

The superb print quality of the Stylus 820, even on plain photocopying paper, makes it the ideal choice for cost-conscious users, and the option to upgrade to colour at a later date makes it a sound investment.

- £257.33 (RRP including VAT); mono cartridge: £15.99; colour upgrade: £65
- Epson: 01442 61144

Epson Stylus 820

Build quality	1	2	3	4	5
Performance	1	2	3	4	5
Features	1	2	3	4	5
Value for money	1	2	3	4	5

Canon BJ-30

Although it's an excellent portable printer, the Canon BJ-30, which costs £233.82 with VAT, is also ideal as a more-than-capable desktop machine for those users with little free desk space. With a footprint barely larger than that of a hardback book, the BJ-30 still manages to incorporate a 30-sheet feeder.

In addition to showing the printer's status, the control panel on the top of the unit can also be used to alter the printer's settings. This is useful for applications with limited printer control, such as many MS-Dos programs.

Print quality is extremely respectable, thanks to the 360x360dpi resolution, and both text and graphics print clear and sharp. Unfortunately, the small size of the BJ-30 has an impact on its print cartridges – they are tiny, only last for around 170 pages – they cost £28.99. However, they can be replaced independently of the printhead. Refills cost around £5.99.

Canon: 0121 680 8062



HP Deskjet 340

The Deskjet 340 is another portable printer but, like the Canon BJ-30, its features make it more than suitable for use as a desktop machine.

With a 30-sheet feeder at the rear, the Deskjet 340's small footprint is due partly to its lack of a paper tray – printed pages simply drop out of a slot on the front of the unit onto the table top. This arrangement does mean that the paper-path is relatively flat, though.

The unit, which costs £274.95 including VAT, is a colour-capable printer: ink cartridges have to swapped around for black and colour prints, but the control software prompts for this at the appropriate time.

Print quality is good – the letters are crisp and the black print is black. Closer inspection does reveal some jagged edges on text, but the 600x300 dpi resolution means they are barely noticeable to the naked eye. Cartridge life is also good – about 750 pages at 5 percent coverage.

Hewlett-Packard: 01344 369222

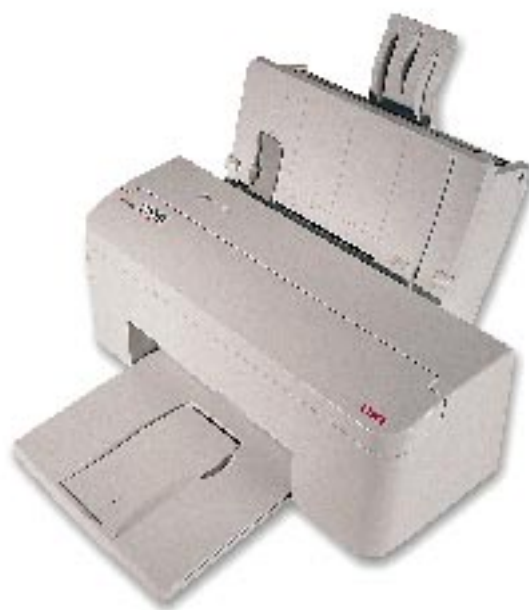


When it comes to buying a colour inkjet printer, there are certainly plenty to choose from. It's possible to buy a colour inkjet for occasional colour use for around £150. Alternatively, models capable of producing near-photographic colour prints on paper sizes of A3 or larger are also available for around £1,500. For this award, however, we've restricted our choice to inkjet printers that cost between £300 and £600 – plenty of money for a good all-round printer that can produce high-quality colour graphics, as well as high-quality text.

Of all the colour inkjets we've looked at, the one that tops our list is the Okijet 2010. A true four-colour printer (using two separate cartridges), the 600x300dpi mono and 300x300dpi colour resolutions may not be the highest of all, but the print quality, particularly on plain paper, is simply stunning. Black text is sharp and black-and-white photographic prints are of almost photographic quality. Colour prints are equally impressive, and although heavy ink coverage can cause some paper rippling, this doesn't detract from the overall quality.

The 2010 has a 150-sheet feeder at the back and a gentle paper path that allows different paper types to be used with ease. A useful feature is the single-page paper slot that allows one-off pages to be printed without unloading the sheet feeder. Inkjet printers are not noted for their noisiness, but the 2010 is very quiet. Printing itself is almost silent – in fact, the most noise comes from the sheet-feeder loading a piece of paper.

Both black and colour cartridges are loaded at the same time in the 2010, so there is no need for cartridge swapping in day-to-day use. The printer driver automatically detects the type of print being



Colour inkjet printer Okijet 2010



made and uses the appropriate printhead. The two-cartridge system also means colour prints have true black (rather than a cyan, magenta and yellow mix), which gives better-quality prints, as well as saving on colour ink.

There are no controls on the 2010 – access to all the printer's controls are from the Windows printer control program. This pops up whenever a print is made and gives control over the print settings for both Windows and MS-Dos applications, and can also be used to clean the printheads and check the ink levels in each cartridge.

The Okijet 2010 is excellent as an all-round colour printer. It is equally at home producing pages of text or graphics and doesn't need expensive coated paper to give its best.

- £399.50 (RRP including VAT);
mono cartridge: £24.20;
colour cartridge: £26.13.
- Oki: 01753 819819

Okijet 2010

Build quality	1	2	3	4	5
Performance	1	2	3	4	5
Features	1	2	3	4	5
Value for money	1	2	3	4	5

Epson Stylus Color II

The Epson Stylus Color II uses the same piezoelectric printhead as its monochrome sibling, the Stylus 820.

Although physically similar, the Color II is a true four-colour printer. Both black and colour cartridges are installed at the same time, with the printer driver deciding which one to use during printing. As with all four-colour printers, colour prints can contain true black, which is much better than the muddy-brown produced by mixing the cyan, magenta and yellow inks in the colour cartridge.

Plain paper performance is merely adequate, but prints made on the special coated 720dpi paper (available directly from Epson) are stunning and are among the very few we've seen that truly could be described as photorealistic.

As long as you're happy to pay more for special paper, the Stylus Color II, at £398.33 (including VAT), remains one of the few inkjet printers that can produce colour prints of breathtaking clarity.

Epson: 01442 61144



Citizen Printiva 600c

We know it's not an inkjet printer, but the £515.83 (including VAT) Citizen Printiva 600c impressed us enough for it to warrant a mention.

The Printiva 600c is a 'dry' ink printer – its ink comes in the form of tape cassettes. There are four cassettes, one each for black, cyan, magenta and yellow. This not only allows four-colour printing, but means that individual cassettes can be replaced as and when they run out – which is useful if you print a lot of one colour.

Metallic colours, such as gold and silver, can also be used – which is something inkjet printers have yet to achieve.

Dry ink also gives the Printiva 600c its main advantage – prints are completely dry, smudgeproof and waterproof. Prints can also be made on to any surface, including thin paper, glossy card and plastic. The drawback? The ink cassettes don't last as long as normal ink cartridges, but at least they're cheap to replace.

Citizen: 01753 584111





Personal laser printer

Panasonic KX-P6500

Personal lasers can be found in both office and home settings, but the general requirements are the same. To fit the bill, a personal laser should be compact, reasonably quiet, and easy to set up and maintain.

For the award in this category we finally settled on Panasonic's KX-P6500, which won a Best Buy in our March issue group test.

The KX-P6500's most striking feature is its unconventional design, resembling a small mini-tower desktop PC. It has a 600dpi laser print engine squeezed into a case mea-

suring just 4.9in wide by 14.8in deep and 11.25in high, although the overall width and height increase when the hinged input and output trays are opened ready for use. Even so, the Panasonic should fit comfortably beside a typical PC on a normal desk.

The KX-P6500 uses the GDI (Graphical Device Interface) approach, in which the host PC provides the processing power and memory to convert internal Windows page descriptions into a print file, rather than doing the work itself. This means the printer can be simpler and therefore less expensive—in this case,



just £459. GDI printers cannot operate directly with Dos applications, but the Panasonic gets around this by providing an HP Laserjet II (PCL 4) emulation that allows printing when Dos applications are run from inside Windows. Because GDI printers are designed to be controlled by software, the front of the unit is bare apart from a reset button and a few basic status indicator LEDs.

Paper is loaded into a general-purpose 100-sheet feeder at the top and emerges on the right onto a support. However, there is no dedicated manual feed slot or secondary feed tray for special media, nor is there any provision for an optional high-capacity sheet feeder.

The GDI driver software supplied with the printer offers comprehensive setup options and detailed status and error reporting derived from the bidirectional link between the printer and the host PC. For example, if a paper jam occurs, an animated cutaway of the printer appears indicating where the jam has occurred and instructing you how to clear it.

Despite being cheaper than most 600dpi printers, the Panasonic produced good-quality output. It was also faster than much of its competition, typically managing text-only documents at 5ppm, and graphics at 4.6ppm.

This is a relatively compact printer capable of high-quality text and graphics output at above-average speeds, and has a fully-featured driver which simplifies both setup and troubleshooting.

○ £459

○ Panasonic: 0500 404041

Panasonic KX-P6500

Build quality	1	2	3	4	5
Performance	1	2	3	4	5
Features	1	2	3	4	5
Value for money	1	2	3	4	5

HP Laserjet 5L

The Laserjet 5L is a 600dpi laser printer with its own processor and 1Mb of on-board memory, which it needs to interpret the PCL 5 printer-control language it is designed to use. Despite the fact that it is more internally complex than the Panasonic, the price is only a little higher at £479; performance improves when at least 1Mb of extra memory is added, which obviously increases the overall cost.

It has a 100-sheet feed tray and a secondary feeder for envelopes or special media, and there is a mechanism for selecting a flatter paper path, which can help reduce curl and jams if you are printing on heavy paper or card. The HP driver allows a reasonable amount of direct control and it also has an auto setting which selects the most appropriate parameters for the particular job being printed. The benefits of 600dpi resolution are apparent in the smooth shading effects the Laserjet 5L can manage with graphics, as well as its ability to reproduce fine detail accurately.

Hewlett-Packard: 01344 369222



Epson EPL-5500

The Epson EPL-5500 is comparable to the Hewlett-Packard Laserjet 5L in many ways: it's a 600dpi laser printer which comes with 1Mb of Ram as standard, it operates in HP PCL5e (Laserjet 4) emulation, and it also has a similar collection of resident TrueType fonts.

Furthermore, the EPL-5500 has a recommended retail price of £475, almost exactly the same as the HP's RRP.

The printer is a fairly compact unit although, like the Panasonic KX-P6500, it expands to a certain extent once the various trays, particularly the 150-sheet feeder, are opened for use.

Output quality, both in terms of text and graphics, is pretty much identical to that produced by the Laserjet 5L, so it is good. However, the two differ in speed. While the Laserjet 5L seemed slightly hampered by having only 1Mb of memory as standard, the Epson coped better and outran the HP machine at both text and graphics printing tasks.

Epson: 01442 61144



There are office lasers and office lasers – the relatively new Hewlett-Packard Laserjet 5Si MX, for example, comes with 12Mb of Ram, Postscript Level 2 and PCL 5 emulations, and a myriad of interfaces and resident fonts. It can spew out 600dpi pages at a remarkable 24 a minute and will set you back £4,049. This is some way beyond the price range of this particular category and, despite the fact that there have been other less expensive additions to most of the major ranges over the past 12 months, we found ourselves coming back again and again to the 1,200x 1,200dpi Lexmark Optra R Plus.

What is surprising about the Optra is its list price of £1,359, which is very reasonable considering what you get for your money (although the 2Mb of base memory really needs at least a £399 upgrade to 8Mb before you can start using the 1,200dpi mode). The machine operates at 600dpi and 300dpi as well, and supports Level 2 Postscript and HP PCL5 emulations with an autoswitching function that selects whichever is appropriate to the incoming print file.

As befits an office printer, it supports several network options including Local Talk, Ethernet and Token Ring, although the relevant adaptors are extra. Up to two can be added, or one of the slots can go to a 40Mb hard disk for holding downloaded fonts and macros. Alternatively, the machine can be fitted with 4Mb of flash Ram for downloads.

The Optra is fairly large, and is taller and has a bigger footprint than a Laserjet 4, but the height of the case does accommodate a fully-recessed 200-sheet feed tray. The control panel is easy to use and based around a multiple-line LCD display, but the real-time status and error reporting via the driver software and a bi-directional link with



Office laser printer Lexmark Optra R Plus



the host PC or network, almost makes this redundant.

You get a good selection of resident fonts for each emulation – 36 Intellifont for PCL5e mode and 39 Type 1 Postscript – plus 10 TrueType fonts that work for both emulations. The unit can manage 16ppm, although this drops to between 10ppm and 12ppm for 1,200dpi work. Text and graphics come out crisp at 600dpi. Upping the resolution to 1,200dpi doesn't do much for text, but halftoning, especially on photographic images, is made extremely smooth and convincing with the dot-patterning used to

create the gradation effects so fine as to be almost imperceptible.

An impressive mid-range office laser printer which delivers on both speed and top-end print quality, while remaining relatively easy to install, configure and maintain.

○ £1,359

○ Lexmark: 01628 481500

Lexmark Optra R Plus

Build quality	1	2	3	4	5
Performance	1	2	3	4	5
Features	1	2	3	4	5
Value for money	1	2	3	4	5

Brother HL-1260

The Brother HL-1260 is a 600dpi laser device with an unusually large 500-sheet feed tray, as opposed to the more common 200 or 250-sheet capacity. Like the Lexmark, it comes with 2Mb of Ram as standard (expandable to 26Mb) and a bi-directional parallel port; additional networking adaptors are available, but only as options.

The physical controls aren't quite as good as the Optra's, but they are still easy to use as there are plenty of buttons providing direct access to commonly-used functions. The printer supports HP PCL5e emulation, but not Postscript.

Output quality at 600dpi is generally good, and the Brother scores particularly well for its fast print speeds with text and simpler graphics, although more complex print jobs can slow down a bit unless the basic 2Mb of memory is upgraded. The printer currently has a recommended retail price of £1,249, but as usual it's advisable to shop around for the best dealer discount.

Brother: 0161 330 6531



Hewlett-Packard 5P

The Hewlett-Packard 5P is cheaper and less bulky than the company's 4-series printers, but it's still aimed at the small workgroup as much as single users.

The printer has a recommended retail price of £815, which buys you 2Mb of Ram and twin parallel ports with autoswitching between inputs.

The machine supports the massively popular PCL5e emulation, and Postscript is also available as an option along with a range of network adaptors.

The 5P is another 600dpi printer with resolution enhancement providing additional edge smoothing by increasing the horizontal resolution.

A 250-sheet feed tray is incorporated into the base of the printer, shielding the stack from dust, and there is a second multipurpose feeder positioned to provide a flatter paper path, which is designed to take envelopes and a variety of heavy media.

Hewlett-Packard: 01344 369222



Despite the fact that most desktop PCs are now supplied with graphics subsystems equal to the task of running Windows at high resolution, many are still supplied with a 14in monitor as standard. This helps keep the overall cost down, but imposes the restriction of VGA or at best SuperVGA resolution on the machine—unless, of course, you opt for a bigger display.

The best compromise between size, resolution and cost is represented by monitors with a 17in tube diagonal, which produces a comfortably readable picture at 1,024x768 resolution. In this category we were looking for a combination of comprehensive but simple-to-use controls with good overall image quality at a realistic price.

There are a number of good-quality 17in monitors available at the moment, but we were particularly impressed with Samsung's Syncmaster GLi, which offers a winning blend of features, quality and price. In fact, with a recommended retail price of £599, the Syncmaster is cheaper than some of the less impressive competition.

The Syncmaster is relatively compact for its tube size, measuring 17in front to back. It has both the standard 15-pin VGA D-Sub connector and a 5-way BNC connector which can be used with a coaxial cable for slightly better image quality at high resolutions.

At the front the only visible controls are the power stud and rotary brightness and contrast tuners. The rest are mounted on a hinged block which opens with a smooth, pneumatic action when you press the centre of the bezel.

The main button triggers an on-screen menu which you navigate and adjust using a group of arrow buttons. The essential geometry settings are all present, as well as a



Monitor (17in) Samsung Syncmaster 17GLi



rotation control and a fully-customisable colour setup plus two predefined colour modes.

The screen is only slightly curved and the controls let you size up the picture to fill the available display area, giving it a maximum diagonal of 15.8in.

The screen surface has an evaporated metal anti-static anti-glare coating which makes colours appear more vibrant, although it does require fairly frequent cleaning. The image is sharp right into the corners, with good reproduction of fine detail thanks to the small .26mm dot pitch. The Syncmaster

can also manage complete stability, thanks to vertical refresh support up to 100Hz at 1,024x768.

The Syncmaster benefits from simple but powerful controls, good image quality and high refresh rate support – and it's affordable into the bargain.

○ £599

○ Samsung: 0181 391 0168

Samsung Syncmaster 17GLi

Build quality	1	2	3	4	5
Performance	1	2	3	4	5
Features	1	2	3	4	5
Value for money	1	2	3	4	5

Idek Iiyama Visionmaster Pro 17

This £649 version of Idek's popular Visionmaster monitor has a Mitsubishi Diamondtron screen, which is effectively the same as a Sony Trinitron manufactured under a cross-licensing agreement with Sony. It's a compact unit measuring 16.5in deep with an actual image diagonal of 15.75in and, like the Syncmaster, it has both D-Sub and BNC inputs.

The image controls are selected and adjusted using only three buttons below the bezel, in conjunction with an on-screen setup menu. Once again the options are comprehensive, with full geometry correction and facilities for creating a custom colour balance, either to obtain an untinted pure-white background, or to match a particular printer's characteristics.

The picture itself is commendably sharp and can be completely stable as the monitor supports vertical refresh rates up to 100Hz at 1,024x768 resolution.

Idek Iiyama: 01438 745482



Wyse WY-17E

Typically, 17in monitors tend to have prices of around £650, not including VAT, which makes the Wyse WY-17E comparatively inexpensive at only £499. Despite its low price, it's a nice-looking display with a distinctively-styled cabinet which is neither too large nor too heavy for its class.

Unlike the Idek Iiyama and Samsung monitors, the Wyse has a captive signal cable terminating in a standard VGA D-Sub connector, and there is no provision for 5-way BNC input.

The controls are similar to the Idek's, with three buttons that are used to open, select from and adjust options in an on-screen menu.

It is possible to get a 15.9in image diagonal out of the Wyse, although some unused space remains at the edges of the picture. The image is clear and stable, with vivid, even colours and, while the Wyse WY-17E isn't as pin-sharp as some of the more expensive monitors, it still represents very good value for money.

Wyse: 01734 342200



Scanner Devcom Scanpro 1200

The price of flatbed colour scanners has fallen so much over the past few years that it is hard to see how some manufacturers are still making a profit. This time last year, you could pay around £600 for a decent one; now, it is about half that, with some models costing little more than hand-held devices. Of the scanners we've looked at, the one we feel offers excellent performance at an incredibly low price is the Devcom Scanpro 1200.

Flatbed scanners, as their name suggests, use a flat surface onto

which the object to be scanned is placed, much like a photocopier. The main advantage of this system is that irregularly-shaped objects can be scanned easily – whether it's a page from a magazine or a picture in a book. Flatbed scanners also keep the original perfectly still, which is essential for clear scans.

For £239, the Devcom Scanpro 1200 offers three-pass colour scanning (one pass each for red, green and blue) at a resolution of 600x300dpi, which can be interpolated through software to 1,200x1,200dpi. Like almost all flatbed scanners, the Scanpro 1200



connects via a Scsi interface, something that few PCs have as standard. Fortunately, Devcom supplies one for you and fitting it is extremely straightforward.

The Scanpro 1200 is Twain-compliant, which means any compatible software (such as Paintshop Pro) can use the scanner simply by selecting the Acquire option from the program's File menu. This brings up a scanner-control window in which various scan adjustments can be made before full scanning commences.

The scan time depends on the resolution and format (line art, greyscale or colour) of the original, but we averaged about 90 seconds for a full-colour A4 scan at 72dpi (perfect for a full-screen image at 640x480 resolution on a monitor). Scans at higher resolutions take much longer and make greater demands on your PC, particularly its memory.

Imagepals Go and Textbridge are also included, offering image editing and text recognition respectively. Textbridge, from Xerox, allows a page of typewritten text to be scanned and then converted from an image into text suitable for editing in a word processor.

Any Devcom scanner can be upgraded for a more powerful model for only the difference between their original prices.

The Devcom Scanpro 1200 is excellent value – a high-quality colour flatbed scanner with useful bundled software and manuals, all for the price of a hand-held model.

○ £280.83 (including VAT)

○ Devcom International:

01324 825005

Devcom Scanpro 1200

Build quality	1	2	3	4	5
Performance	1	2	3	4	5
Features	1	2	3	4	5
Value for money	1	2	3	4	5

Logitech Scanman Colour Pro

A hand-held scanner can be extremely useful. It doesn't take up much desk space and it can scan anything you can drag the scanner over. The downside is that it needs a steady hand to get an even scan and the scan size is limited to about 4in wide. Making large scans, however, is still possible by making multiple scans and then 'stitching' them together to make a single whole.

The Scanman Colour Pro (which replaces the Scanman Colour) is a £163.63 (incl VAT) hand-held scanner capable of scanning in 24-bit colour at a maximum resolution of 400dpi. It does require a separate expansion card, which is supplied, but its Twain driver means it can be used with any Twain-compatible program. The problem of getting a straight scan is overcome by the inclusion of a scan guide. This is a plastic rail that the scanner slides along as a scan is being made, thus ensuring that it doesn't wander off track.

Logitech: 01344 8911313



Visioneer Paperport Vx

Although £299 (£351.33 with VAT) might seem a lot of money for a greyscale scanner that can only process single sheets of paper, it all depends on your needs. If you want to scan and manage documents and images quickly and easily, then the Visioneer Paperport Vx is ideal. Plug it into a serial port and whenever a page needs to be scanned, push it into the Paperport's slot and the scanner springs into life, quickly scans the page, and sends it to the Paperport document manager.

The Paperport software is the most impressive aspect of the system. Here, pages can be stored in folders, stacked in piles of related pages, and retouched and rotated to make them easier to read.

Drag a document to the Word icon at the bottom of the screen and OCR (Optical Character Recognition) software will convert it to text for editing. Drag it to the fax icon and your fax software will prepare it for transmission via your fax modem. An invaluable addition to any paper-bound desk.

Computers Unlimited: 0181 200 8282



A modem is fast becoming the essential PC peripheral. And, with Web surfing and e-mail all the rage, it's even more important than a printer for a growing number of users. Modems are far more reliable than they used to be, and compatibility isn't generally a problem. Try to get the fastest currently available – today, that means a v34 modem, which will give you line speeds of up to 28,000bps.

What tends most to differentiate one modem from another, aside from price, is the software bundle supplied with it. You can expect to get some decent fax software (usually Winfax Lite), comms software, and an introductory subscription to an online service or a direct Internet access provider.

The winner in this year's best modem category is the Sportster Vi 28,800 from US Robotics. The company is one of the leading modem manufacturers and says that its Sportster model is the world's top-selling modem. This model, which includes voice functions as well as the standard data and fax, has a very small, very light, plastic box with red LEDs on the front.

We reviewed the Sportster Vi 14,400 in the April issue of *What PC?* where it won the Best Buy, (it should still be available at the bargain price of £99 quoted in that review). The latest version is identical in every respect, but supports data communications up to 28,800bps. Both models support fax transmission up to 14,400bps, and Class 1 fax.

The package includes everything most people will need to install the modem: a serial cable, a telephone cable, an AC adaptor, and a telephone socket doubler (the modem doesn't allow plug-through for telephones). The serial cable is 25-pin to 25-pin; most people



Modem

US Robotics Sportster Vi



ple with newer machines will have to buy either a 25-pin to 9-pin serial cable or an adaptor plug.

The modem comes bundled with a Compuserve membership kit, a 25 percent-off coupon for the long-distance company ACC, the Pipex Dial Internet package, and a single-purpose piece of software called Quicklink Message Center. This handles all the modem's functions: voice, fax, and comms. A switch inside the modem directs the calls to the correct function. A microphone is built in for recording message greetings; playback of your greeting or incoming mes-

sages is handled through the modem's internal microphone and speaker, your PC sound card's microphone and speaker, or your telephone handset.

If you are looking for voice features, the US Robotics Sportster package is an extremely good buy.

○ £199

○ US Robotics: 0800 225252

US Robotics Sportster Vi

Features	1	2	3	4	5
Performance	1	2	3	4	5
Ease of Use	1	2	3	4	5
Value for money	1	2	3	4	5

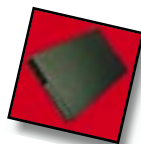
Pace Netlink Gold

Pace is a well-known British modem manufacturer. Its Netlink Gold package is supposed to be 'all you need to hook up to the Internet', and costs only £179. In one box, you get a 28,800bps modem, a full Internet software suite, 21 days' free Internet access, and an Internet guide book. The bundled Superfax software includes a fax module and a data communications module.

This desktop modem is a handsomely-designed black slab, somewhat larger than most, but probably less likely to shift position. It has no on/off switch, only a reset button (on the back) for those moments when your software crashes leaving you hanging online. You can plug your telephone into the back of the modem. Even the labels on the six red LEDs on the front make sense: Fax, Send, Receive.

Netlink Gold is a good package that costs a little more than the cheapest modems available, but has better software and documentation.

Pace: 01274 537046



Frontier XL288E

This Electronic Frontier modem is the company's more-or-less standard-issue model: a medium-size black block with a foot to allow you to save space by standing it upright on its side. It supports data communications up to 28,800bps and fax up to 14,400bps. On the back, there's an on/off switch and dual telephone sockets (line in and telephone out) as well as a serial interface.

You also get an AC adaptor, a telephone cable (designed to be undetachable), an A5 user's manual, and a floppy disk of Delrina's Winfax Lite, Dosfax Lite, Comit Lite for Windows and Comit Lite for Dos. The package should also include Netscape, a 30-day Pipex trial, a Compuserve membership kit, and the same trial offers as the Frontier Viper for a messaging agent and an e-mail-to-fax service.

If you're on a tight budget, the XL288E, at only £135, provides a decent set of features and the right level of performance for most users.

Electronic Frontier: 01734 810600

