Portability put to the test

Mobile computing is on the rise, but as more devices come on to the market it can be hard to decide which one best suits your needs. Ursula Seymour compares the features and usability of five of the most popular portable product types to help you decide

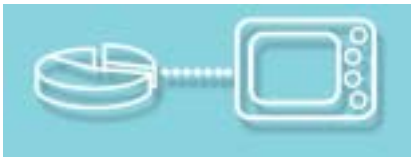
The options available for portable computing have never been more bewildering. With handheld PCs powering up to 400MHz thanks to Intel's XScale processor and mobile PCs coming in different shapes and sizes from slinky tablets to hefty desktop replacements, the choice is endless.

We decided to take a practical approach and pick five portable devices to find out how well they could deal with everyday computing tasks. We chose the Mesh Explorer 15.1 GT Pro, which represents the desktop replacement option; NEC's ultra-portable Versa S260 notebook; the HP Compaq Tablet PC TC1000; Palm's first ARM-based PDA, the Tungsten T; while Toshiba's e740 defends the Pocket PC's honour.

Our chosen products represent a broad spectrum of what's available on the current market, although as we limited ourselves to five our list is far from exhaustive. The tasks we set were designed to represent the most common office and home tasks most people carry out on their PCs. They were:

- to create and edit documents and spreadsheets;
- to watch films on the move;
- to play games;
- to edit and present a PowerPoint presentation;
- to send email and surf the web.

As these devices are designed to meet different needs, some are easier to use than others for specific tasks. However, we wanted to know whether one product could win overall or whether, in order to complete a range of tasks, we must still cart round a briefcase crammed with technology.



Create and edit documents and spreadsheets

While notebooks may be ideal for this task, handhelds can also be used to create and edit documents/spreadsheets. And, with the HP Compaq Tablet PC TC1000, there are more innovative ways to input data than a boring keyboard.

The Tungsten is bundled with DataViz's Documents To Go 5.0, which includes word processing and spreadsheet tools. Word To Go lets you create and edit Word documents on the Palm. It's easy to create a report or letter on a desktop PC, download it to your Palm and edit it on the move. These changes will then be added to the original document the next time you hook up your Palm to your desktop PC.

Word To Go supports tables and graphics as well as input from a keyboard and allows you to synch with multiple PCs. It doesn't only work with Microsoft Word, either – the application supports a range of word processing packages, even those on the Mac. Sheet To Go works in much the same way for spreadsheet documents, including those created in Excel.

The Toshiba e740 uses cut-down versions of Excel and Word that come as part of the Pocket PC operating system. These allow you to create, edit and synchronise your Word and Excel documents on the go but, as they are Microsoft products, do not support the same wide range of applications as Documents To Go.

Handheld PCs may have software installed that allows them to create and edit documents and spreadsheets, but their small screens and the fact that data has to be input using a stylus means these devices are hardly ideal for the job. The office apps are just a stopgap that allow you to make urgent changes when away from your PC.

Compaq's 10.4in Tablet PC has a larger screen than most handhelds. Microsoft's Office XP Pack for Tablet PC (which you can download from http://office.microsoft.com/downloads/2002/oxptp.aspx) allows you to add data into both Excel and Word XP. Information is converted and this makes writing on the device far less fiddly. Using handwriting recognition you can jot down comments directly on Excel spreadsheets, handwrite notes in Word and draw diagrams straight on to your document.

The two notebooks – the Mesh Explorer and NEC Versa S260 – were designed with this task in mind so win hands down in this category. It's worth noting, though, that only the Mesh Explorer comes with Lotus SmartSuite 9.0 – a package that allows word processing and spreadsheet creation out of the box.

In the palm of your hand

While most of us are aware that there's an inexhaustible range of products for both notebook and desktop PCs, not everyone is aware of just how many tools there are available that can expand the usefulness of your PDA, whether Palm- or Pocket PC-based.

The Palm has been around for many years and there is a plethora of programs available for it – most of which you can download for nothing or for a small fee.

A quick look on www.palmgear.com, one of the best Palm software sites, threw up everything from a Bulgarian/English dictionary to the works of Martin Luther. There are games, utilities such as a world clock, weight and measurement converters, expense calculators, books, calendars of religious and sporting events, calorie counters – the list is endless. It's easy and relatively cheap to turn your Palm into a powerhouse of information. You can also buy software on SD (secure digital) cards from the Palm store and other retailers.

Microsoft's Pocket PC operating system hasn't been around as long as the Palm OS, but you can get plenty of third-party applications for this platform too. Browse www.pocketgear.com and you'll find the variety of available programs offer many of the same features and functionality as the Palm's applications.

Other sites worth visiting include www.expansys.com, www.palm.com/uk, www.pocketpc.com, www.softwide.com and www.visualit.co.uk.

Watch movies on the move

This is another job that's best suited to a notebook PC thanks to their larger screens and integrated DVD-ROM drives. The Mesh Explorer and the NEC Versa both have DVD-ROM drives that allow you to play back movies – ideal if you're stuck on a train or at the airport. But before we hand out the first prize to the notebooks again, it's worth noting that battery life will play a major part in how suitable your computer is as a personal video player.

The Explorer's battery life only stretches to a maximum of an hour and a half, even taking the manufacturer's generously claimed longevity at face value. And it still isn't long enough to get you to the end of most feature films.

The Versa S260 is perhaps more suited to watching movies thanks to its built-in 16-speed DVD-ROM drive and claimed six-hour battery life. The screen may measure just 12.1in, but this is larger than the small seat-mounted screens most passengers endure on long flights.

In terms of hand luggage allowance the lightweight 1.9kg NEC is also a better option than the 3.7kg Explorer, which takes up over half the allowance provided by some airlines. BA limits hand luggage to just 6kg for EuroTraveller passengers, while Lufthansa and SAS set the maximum weight at 8kg.

The tablet PC is not the best choice for in-flight or train movie entertainment either. The standard spec has no optical drive, although £206 will get you an external combo DVD-RW. Juggling this drive as well as the device itself on a tiny travel table would be awkward at best, while the slightly reflective screen doesn't offer the best quality viewing.

You might think that it's impossible to watch a movie on a PDA, but you'd be wrong – $19.95 gets you a downloadable movie playback application for the Tungsten from www.tealpoint.com/softmovi.htm. This offers playback at 60fps (frames per second), which isn't bad when you consider that on film or TV you get around 25fps. But the range of movies available is limited. Teal does offer downloadable taster movies and animations at www.tealpoint.com/movies.htm, but as most last just a few minutes they won't keep you amused for long. Equally, sound is hardly top notch from the Tungsten's tiny speakers.

Storing footage on a PDA can be a problem too. The Tungsten has just 14MB built in and the largest SD (secure digital) expansion card is 256MB. Panasonic did announce a 1GB version at the Consumer Electronics Show earlier this year, but this isn't due out until autumn.

It's also possible to play movies via a Pocket PC device. The Toshiba e740 boasts 16bit built-in speakers so its sound quality should be slightly better than the Tungsten's. Both the e740 and the Tungsten have headphone jacks, which mean you can plug in for stereo sound.

Download a free Pocket PC movie player from www.pdagold.com/software/ppc/300/detail.asp?softwareid=100053.

There are several websites offering movies for this platform including www.atomfilms.shockwave.com, www.domainoftheinfinite.com and www.pocketmovies.net.

Again, though, the Pocket PC's inherently small screen means it isn't the perfect display on which to watch movies. Like the Palm, the footage that's available tends to be short clips that won't kill a lot of time.

Once again, the notebook comes out on top in this category and the NEC Versa S260 is our choice for this task. It's still worth checking battery life if you want to watch full movies, as models that use desktop processors, such as the Mesh Explorer, won't have enough juice to last to the film's exciting climax.

Play games

No portable PC is ideal for playing games. Despite huge leaps forward in graphics, processor and screen technology, notebooks simply cannot live up to the performance of a desktop system. But if you have chosen a laptop for home use, or if you just want to kill time in your hotel room on a business trip, you might well want to use your portable computer to play games.

The most powerful performer in our selection of products is undoubtedly the Mesh Explorer with its 2.8GHz processor, 512MB of DDR (double data rate) RAM and 64MB DDR ATI Mobility Radeon 9000 graphics card. It also has the largest hard drive, a 15.1in screen and DVD-ROM drive. The Mesh is a stationary games machine, though. Rendering complex graphics is hard work for your PC so it will quickly eat up battery power. If you're not hooked up to the mains you could find your notebook dies on you at a crucial moment.

Of course, you could opt for simpler games – such as Tetris and Solitaire – that won't devour power or require such a high-spec machine. These will work well on pretty much any notebook and the Mesh, NEC and HP Compaq Tablet PC should easily be up to the job.

You can even download free games, so the lack of external drive with the Compaq won't prove a problem. Simply type 'free games' into Google.com and take your pick. Choose carefully, though, as quality varies and some downloads might affect the performance of your PC.

There is also a raft of games for both the Palm and Pocket PC platforms. Again, it's easy to find sites jam-packed with free and shareware games as well as paid-for titles. As graphics have improved on handheld PCs, developers are starting to move beyond simple games and 3D strategy titles are beginning to emerge. For example, Lands of Shadowgate (www.landsofshadowgate.com) works on both Palm and Pocket PC operating systems and offers a multiplayer function.

Sony has taken it one step further and developed a tiny controller for its Clie Palm-based handhelds, which transforms them into mini consoles.

Which product is best for gaming depends on the type of games you like to play. If you are happy to while away the hours playing Solitaire or Scrabble then a Palm or Pocket PC device is more than enough. But if you want to get stuck into a strategy game or RPG (role-playing game) then a fully-featured notebook is a must. For fast-moving shoot-'em-ups, though, you are best off sticking to the desktop PC.

Writer's block

While for a journalist or secretary typing might be second nature, for many computer users inputting data via a keyboard is unintuitive. That's why developers have been desperately trying to come up with an accurate alternative.

One method is handwriting recognition, which simply imitates the way we put information down on paper on a computer screen. This tried-and-tested technology has long been used by PDAs as an input method. Palm devices use an application called Graffiti, but this is slow as you have to put in each letter individually.

Pocket PCs use a system called Transcriber which supports cursive (joined-up) handwriting and is relatively accurate. It's predictive and tries to guess what you are writing then offers you the option to choose the correct word if it isn't sure.

In our experience, though, the best handwriting recognition is available on the tablet PC. This device was specifically designed to be written on like a paper-based notebook. Its powerful processor means that accuracy levels are high and it's also simple to add data by writing onscreen with the bundled stylus.

Feature comparison

Model	Telephone	Website	Warranty	Price (ex VAT)	Screen/ max resolution	Weight	Dimensions (wxdxh) mm	Claimed battery life	Processor
HP Compaq Tablet PC TC1000	0845 270 4222	www.hp.com	2-year	£1,333	10.4in colour TFT/ 1,024x768	1.36kg	209x274x20mm	up to 5 hours	1GHz Transmeta Crusoe TM5800
Mesh Explorer 15in GT Pro	0870 046 4747	www.meshcomputers.com	3-year	£1,399	15.1in colour TFT/ 1,400x1,050	3.7kg	329x290x44mm	60-90 mins	2.8GHz Pentium 4
NEC Versa S260	0870 010 6328	www.nec.co.uk	3-year	£1,339	12.1in colour TFT/ 1,024x768	1.9kg	216x274x20mm	up to 6 hours	1.2GHz Mobile Pentium 4
Palm Tungsten T	0118 9278 700	www.palm.com.uk	1-year	£298	3in high res colour/320x320	157g	102x75x15mm	1 week	144MHz Arm
Toshiba Pocket PC e740	0870 444 8944	www.toshiba.co.uk	1-year	£425	3.5in 16bit colour/ 240x320	175g	125x80x16mm	up to 8 hours	400MHz Intel XScale PXA250

Edit and display PowerPoint presentations

PowerPoint is one of the key applications for mobile professionals, allowing users to produce professional-looking presentations for offsite clients. In fact, this task spurred the development of portable PCs in the first place. It's no surprise, then, that most notebooks can edit and display PowerPoint documents with ease.

The Mesh, NEC and HP Compaq Tablet PC have the necessary VGA-out ports to hook up a projector to display a presentation to an audience. Once the software is installed, creating and editing PowerPoint slides is simple. Mesh is slightly ahead of the game as its bundled Lotus SmartSuite software includes the Freelance presentation tool, although this is not as widely used as PowerPoint.

Before you dismiss PDAs as unsuitable for mobile presentations, there are tools that allow you to create and display slideshows on a handheld device. This can save on the weight you have to carry round and the cost of your presentation solution.

Pocket SlideShow allows you to edit and view PowerPoint slides on a Pocket PC screen. It can be downloaded from www.cnetx.com/slideshow and costs $19.95 (around £12) to register.

Bear in mind, however, that you will need to output slides to a projector unless you want your clients to crowd around a tiny PDA screen.

Toshiba offers a £20 PC Expansion Pack for the e740 which adds both VGA and USB ports to the PDA. This means you can hook up the handheld to a projector such as Toshiba's £2,150 TDP-P5. Packed into a chassis that weighs just 1kg, the TDP-P5 offers 1,000 Ansi lumens brightness, a picture size of up to 6.35m and a projection distance of up to 10m. The combined weight of these two devices comes in at just under 1.2kg – which is less than the ultra-portable Versa or the tablet PC alone.

There are similar solutions for the Palm platform, too. Tungsten's Documents To Go package includes Slideshow To Go, which lets you synchronise, edit and view PowerPoint files. Add to this Margi's £153 Presenter-to-Go SD and you can turn the Tungsten into a mini mobile presentation solution. Presenter To Go displays PowerPoint slideshows via a digital projector at a resolution of up to 1,024x768. It includes an SD card/cable, remote control, power and projector adapters plus software for slide creation.

Overall it's easier to create and display presentations on a notebook, but if you want to cut down on weight then it's worth looking into a PDA-based solution. These devices may not support such fully featured presentations, but then again 1kg is a lot less than the 3kg-plus weights of the average notebook.

	Memory	Storage	Optical drives	Input method	Software	Connectivity & expansion options
	256MB DDR RAM	30GB hard drive	n/a	keyboard, handwriting recognition	Windows XP Tablet	2 x USB 2.0, VGA-out, built-in Wi-Fi
	512MB DDR RAM	60GB hard drive	combo DVD/CR-RW	keyboard	Windows XP Home, Lotus SmartSuite 9.7	FireWire, 4 x USB, infrared, PC Card, PS/2, VGA, S-Video-out
	256MB DDR RAM	20GB hard drive	DVD-ROM	keyboard	Windows XP Pro, Norton AntiVirus	FireWire, 3 x USB, 2 x PC Card, TV & VGA-out
	16MB (14MB actual)	14MB plus expansion card capacity	n/a	onscreen keyboard, handwriting recognition	Documents To Go 5.0, ArcSoft Photobase, Palm/Acrobat reader, VersaMail, BlueBoard, BlueChat, Palm Desktop 4.1	SD/MMC, infrared
	64MB SDRAM, 32MB Flash ROM	64MB plus expansion card capacity	n/a	onscreen keyboard, handwriting recognition	Pocket Word, Excel, IE & Outlook, Windows Media Player 8.0, Adobe Acrobat Reader, ActiveSync 3.5, Outlook 2002	built-in Wi-Fi, Type I or II CF, SD/MMC

Email and web access

The Mesh Explorer and NEC Versa both have built-in modems and ethernet adapters so you can surf the web and check email whether at home or in the office – assuming you have the correct software and an account with an ISP. The HP Compaq Tablet PC and Toshiba e740 offer Wi-Fi (802.11b) wireless networking so, if you are within range of a base station, you can hook up to the internet.

The Tungsten comes preloaded with VersaMail to synchronise with multiple POP and Imap accounts wirelessly (assuming you have an SD Bluetooth adapter) or when you sync with your PC. It also includes the Palm web and WAP browser and, with a Bluetooth or infrared-enabled phone, you can surf the internet.

The Tungsten can also connect to the web wirelessly by adding a £96 SD Bluetooth card, available from www.palmdirect.com/palmeurope, and having a similarly equipped mobile phone. While Bluetooth offers a much faster and simpler way to dial up wirelessly than infrared, it doesn't have the same degree of flexibility as Wi-Fi – it can only transfer data up to speeds of 1Mbps (megabit per second) while Wi-Fi can handle up to 11Mbps.

All the portable devices we looked at are designed to allow you to check email or surf the web with minimum fuss. Which best suits your needs depends on what you are looking for. If you want to be able to hook up to wireless hotspots then the HP Compaq Tablet PC or Toshiba e740 is ideal out of the box, although you can pick up a Wi-Fi PC Card for around £30 which would add this capability to either of the notebooks.

If you have a Bluetooth phone the Tungsten might suit you best, although there's also a £325 Bluetooth version of the e740 and Bluetooth adapters can be added to either notebook via the PC Card slot for under £100.

Make up your mind

In terms of price the Mesh Explorer wins hands down, but if you're looking for something a little smaller than a notebook both the Tungsten T and the Toshiba e740 PDAs are considerably cheaper. For portability, either the HP Compaq Tablet PC or the NEC Versa would be our choice of device although, again, the PDAs are the lightest option.

Mesh is our pick for power and performance but there is a down side: it's at the bottom of the table for battery life. In terms of conserving energy the NEC Versa is the winning notebook, while the handhelds can keep going for days rather than hours.

When it comes to features the device that appeals will depend on your needs. Clearly a notebook can come closest to matching what you find on your desktop system, but the Tablet PC TC1000 offers the innovation of handwriting recognition and a flexible form factor. This lets you use it like a paper-based notebook or, with a keyboard, like a laptop. The PDAs have less power but offer cut-down versions of the PC software plus plenty of extras that expand their functionality.

Despite the variety of available devices it seems that the humble notebook remains the best all-round portable computer. The Mesh and NEC handled all the tasks we threw at them with ease, but all the devices we looked at have their strengths and weaknesses. ■