PDAs

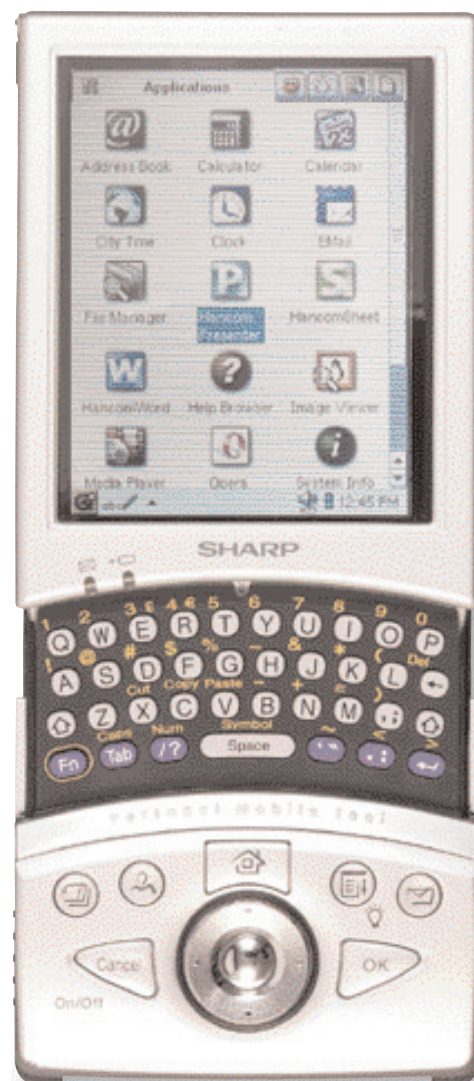## Sort out your life – we give our definitive verdict on 16 PDAs and five PDA/phones

Notebooks, desktops... who needs them? When you can fit a computer that incorporates a 400MHz processor, 64MB of RAM and a powerful operating system into a package just 12mm thick, weighing 150g, it's time to ask some serious questions.

But don't worry – we aren't suggesting the demise of the PC just yet. This array of machines is designed for one thing: to improve your life.

If you just need an organiser to keep synchronised with your PC while you're away from the office, there are compact and affordable devices like the Palm Zire and Sony CLIÉ SL10. But if you want a machine on which to do some serious work, take a look at the Compaq iPAQ and Fujitsu Siemens Pocket LOOX, to name but two. It's not just what you get out of the box either – buy the slim, foldable keyboard that cleverly connects to them and you've got an easy way to enter large amounts of data. (We take a look at various keyboards on p98.)

Then there's entertainment. All the Pocket PCs include a version of Microsoft's Media Player, while earphone sockets and memory slots mean they can easily transform into mobile music machines. Sony's CLIÉ PEG-NR70V even includes a camera for taking snapshots.

Talking of cameras, we compare the new breed of smartphones – such as Nokia's 7650 and Sony Ericsson's P800 – to the five PDA/phones on test. With Handspring's Treo range up against the Nokia 9210i Communicator, O₂'s xda and HP's 928 WDA, this area is shaping up nicely.

We also tackle the tricky question of which operating system to choose. With Pocket PC 2002, Palm OS (in all its many forms) and Sharp's Linux powering the ever-impressive Zaurus SL-5500, this is a complex issue.

With a total of 21 devices tested – not to mention HP's keyboard-based Jornada 728 and the intriguing Invair Filewalker – this is the UK's most comprehensive PDA group test. Whether you're buying for business or personal use, this Labs holds the answer.

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PHOTOGRAPHY Hugh Threlfall

● FEATURE TABLE

	Asus MyPal A600	Compaq iPAQ H3950	Compaq iPAQ H3970	Fujitsu Siemens Pocket LOOX 600	Handspring Treo 90	NEC MobilePro 300E	Palm m500
OVERALL RATING	87	95	96	101	95	94	107
Street price* (inc VAT)	£359 (£422)	£382 (£449)	£449 (£528)	£355 (£417)	£212 (£249)	£318 (£373)	£149 (£175)
Supplier	dabs.com 0800 138 5182	dabs.com 0800 138 5182	Expansys 0161 868 0868	Expansys 0161 868 0868	Handspring via website	NEC Computers 0870 010 6322	Technomatic 0870 516 8671
Supplier's website	www.dabs.com	www.dabs.com	www.expansys.com	www.expansys.com	www.handspring.co.uk	www.nec-online.co.uk	www.technomatic.co.uk
Manufacturer's website	www.asus.com	http://thenew.hp.com	http://thenew.hp.com	www.fujitsu-siemens.co.uk	www.handspring.co.uk	www.nec-online.co.uk	www.palm.com
Basic warranty	1yr RTB	1yr RTB	1yr RTB	1yr RTB	1yr RTB	1yr RTB	1yr RTB
Size W x D x H (mm)	74 x 12 x 124	76-81 x 17 x 132	76-81 x 17 x 132	77-81 x 17 x 129	71 x 16 x 108	77 x 14 x 125	79 x 10 x 114
System weight with battery (g)	150	200	200	173	116	154	113
CORE COMPONENTS							
CPU and speed	400MHz Intel PXA250	400MHz Intel PXA250	400MHz Intel PXA250	400MHz Intel PXA250	33MHz DragonBall	206MHz Intel StrongARM	33MHz DragonBall
RAM (MB)	64	64	64	64	16	64	8
ROM (MB)	32	32	48	32	Not stated	32	4
DISPLAY							
Display type, number of colours	TFT, 16-bit colour	TFT, 16-bit colour	TFT, 16-bit colour	TFT, 16-bit colour	STN, 12-bit colour	TFT, 16-bit colour	TFT, 16-greyscale
Display resolution W x H (pixels)	240 x 320	240 x 320	240 x 320	240 x 320	160 x 160	240 x 320	160 x 160
Display dimensions W x H (mm)	54 x 71	58 x 76	58 x 76	54 x 71	49 x 49	54 x 71	54 x 54
Backlight/frontlight	✔	✔	✔	✔	✔	✔	✔
BATTERY							
Main battery	Lithium ion	Lithium polymer	Lithium polymer	Lithium polymer	Lithium ion	Lithium ion	Lithium polymer
Rechargeable	✔	✔	✔	✔	✔	✔	✔
Rechargeable without cradle	✔	✔	✔	✔	✔	✔	✔
Removable (cost if applicable)	✘	✘	✘	✘	✘	✔ (£25)	✘
Manufacturer's quoted battery life	15-16 hours	18 hours	18 hours	Up to 10 hours	Up to 10 hours	6 hours	2 weeks
Backup battery	✘	✘	✘	✘	✘	✔	✔ (rechargeable)
AUDIO							
Internal microphone	✔	✔	✔	✔	✘	✔	✘
Internal speaker	Speaker	Speaker	Speaker	Speaker	Buzzer	Speaker	Buzzer
Earphone jack	✔	✔	✔	✔	✔	✔	✔
Vibrating alarm	✘	✘	✘	✘	✔	✘	✔
Bundled earphones	✘	✘	✘	✘	✘	✘	✘
SOFTWARE SUPPLIED							
Operating system	Pocket PC 2002	Pocket PC 2002	Pocket PC 2002	Pocket PC 2002	Palm OS 4.1H	Pocket PC 2002	Palm OS 4
Upgradable operating system	✘	✘	✘	✘	✘	✘	✔
Bonus software for PDA	Asus Backup	iPAQ Backup, iPAQ Image Manager, iTask, Nevo	iPAQ Backup, iPAQ Image Manager, iTask, Nevo	Fujitsu Siemens SpeedMenu, Pocket Plugfree, F-Secure FileCrypto	Contacts, DateBook Plus, CityTime World Clock, WordSmith	✘	Palm Mobile Connectivity, DataViz Documents To Go 3, MGI PhotoSuite Mobile Edition
Bonus software for PC	Outlook 2002	Outlook 2002	Outlook 2002	Outlook 2002	Palm Desktop 4.1	Outlook 2002	Palm Desktop 4
COMMUNICATIONS							
Connection type	USB cable	USB docking station (plus serial)	USB docking station (plus serial)	USB docking cradle	USB cable	USB docking cradle	USB docking cradle
Wireless technology	Infrared	Infrared	Bluetooth, infrared	Bluetooth, infrared	Infrared	Infrared	Infrared
Card support	SD/MMC	SD	SD	SD/MMC, CompactFlash Type II	SD/MMC	SD	SD/MMC
EXTRAS							
Keyboard (dimensions, W x H)	✘	Optional (£80)	Optional (£80)	Optional (£56)	64 x 25mm	✘	Optional (£54)
Others	✘	Various jackets	Various jackets	✘	✘	Rocketeer packs (PC Card and CompactFlash Type II)	✘

*All prices were correct at time of going to press, but are subject to change.

	Palm m515	Palm Tungsten T	Palm Zire m150	Sharp Zaurus SL-5500	Sony CLIÉ PEG-NR70V	Sony CLIÉ PEG-SL10	Sony CLIÉ PEG-T675C
OVERALL RATING	108	114	101	112	105	103	101
Street price* (inc VAT)	£200 (£235)	£340 (£400)	£65 (£76)	£300 (£352)	£339 (£398)	£109 (£128)	£268 (£315)
Supplier	Jungle.com 0870 728 7777	Palm 020 7365 9820	dabs.com 0800 138 5182	Technomatic 0870 516 8671	Savastore.com	Technomatic 0870 516 8671	Expansys 0161 868 0868
Supplier's website	www.jungle.com	www.palm.com/uk	www.palm.com	www.technomatic.co.uk	www.savastore.com	www.technomatic.co.uk	www.expansys.com
Manufacturer's website	www.palm.com	www.palm.com	www.palm.com	www.sharp.co.uk	www.clieplaza.com	www.clieplaza.com	www.clieplaza.com
Basic warranty	1yr RTB	1yr RTB	1yr RTB	1yr RTB	1yr RTB	1yr RTB	1yr RTB
Size W x D x H (mm)	79 x 13 x 114	74 x 15 x 101	73 x 14 x 109	74 x 18 x 138	72 x 17 x 137	71 x 16 x 102	72 x 13 x 118
System weight with battery (g)	139	155	106	194	198	130	135
CORE COMPONENTS							
CPU and speed	33MHz DragonBall	144MHz ARM Texas Instruments OMAP 1510	16MHz DragonBall	206MHz Intel StrongARM	66MHz DragonBall Super VZ	33MHz DragonBall	66MHz DragonBall Super VZ
RAM (MB)	16	16	2	64	16	8	16
ROM (MB)	4	Not stated	4	16	8	4	8
DISPLAY							
Display type, number of colours	TFT, 16-bit colour	TFT, 16-bit colour	TFT, 16-greyscale	TFT, 16-bit colour	TFT, 16-bit colour	TFT, 16-greyscale	TFT, 16-bit colour
Display resolution W x H (pixels)	160 x 160	320 x 320	160 x 160	240 x 320	320 x 480	320 x 320	320 x 320
Display dimensions W x H (mm)	54 x 54	54 x 54	46 x 46	53 x 71	54 x 81	51 x 51	55 x 55
Backlight/frontlight	✔	✔	✘	✔	✔	✔	✔
BATTERY							
Main battery	Lithium polymer	Lithium polymer	Lithium ion	Lithium ion	Lithium ion	2 x AAA	Lithium ion
Rechargeable	✔	✔	✔	✔	✔	✘	✔
Rechargeable without cradle	✘	✘	✔	✘	✘	✘	✘
Removable (cost if applicable)	✘	✘	✘	✔ (£38)	✘	✘	✘
Manufacturer's quoted battery life	1 week	1 week	3 weeks	Up to 10 hours	10 days	20 days	10 days
Backup battery	✔ (rechargeable)	✔ (rechargeable)	✔ (rechargeable)	✔ (rechargeable)	✘	✔	✘
AUDIO							
Internal microphone	✘	✔	✘	✘	✘	✘	✘
Internal speaker	Buzzer	Speaker	Buzzer	Buzzer	Speaker	Buzzer	Speaker
Earphone jack	✘	✔	✘	✘	✔	✘	✔
Vibrating alarm	✔	✘	✘	✘	✘	✘	✔
Bundled earphones	✘	✘	✘	✘	✘	✘	✔
SOFTWARE SUPPLIED							
Operating system	Palm OS 4.1	Palm OS 5	Palm OS 4.1	Sharp Linux OS	Palm OS 4.1	Palm OS 4.1	Palm OS 4.1
Upgradable operating system	✘	✘	✘	✘	✘	✘	✘
Bonus software for PDA	Palm Mobile Connectivity, DataViz Documents To Go 4, MGI PhotoSuite Mobile Edition	Palm Mobile Connectivity, DataViz Documents To Go 5, ArcSoft PhotoBase, Palm Reader	✘	Hancom Mobile Office	DataViz Documents To Go 4 Standard, Sony bundle including PictureGear Pocket 2.2, gMovie 1.4 and World Alarm Clock	DataViz Documents To Go 4 Standard, PictureGear Pocket 2.2, PhotoStand 1.3, CLIÉ Paint 1.1, World Alarm Clock	DataViz Documents To Go 4 Standard, Sony bundle including PictureGear Pocket 2.2, gMovie 1.4 and World Alarm Clock
Bonus software for PC	Palm Desktop 4.1	Palm Desktop 4.1	Palm Desktop 4.1	✘	Intellisync Lite 4	PictureGear Lite 4.6, Intellisync Lite 4	PictureGear Lite 4.6, Intellisync Lite 4
COMMUNICATIONS							
Connection type	USB docking cradle	USB docking cradle	USB cable	USB docking cradle	USB docking cradle	USB cable	USB docking cradle
Wireless technology	Infrared	Bluetooth, infrared	Infrared	Infrared	Infrared	Infrared	Infrared
Card support	SD/MMC	SD/MMC	✘	SD/MMC, CompactFlash Type II	Memory Stick	Memory Stick	Memory Stick
EXTRAS							
Keyboard (dimensions, W x H)	Optional (£54)	Optional (£54)	✘	✔ 64 x 23mm	✔ 87 x 42mm	✘	✘
Others	✘	✘	✘	Essentials Pack*****	320 x 240 camera	✘	✘

*All prices were correct at time of going to press, but are subject to change. *****64MB CompactFlash card and 3-in-1 charger (redeemable on purchase)

● FEATURE TABLE

PDA/PHONE · PDA/PHONE · PDA/PHONE · PDA/PHONE · PDA/PHONE

PC PRO RECOMMENDED

	Toshiba e330	Toshiba e740	Handspring Treo 180	Handspring Treo 270	HP Jornada 928 WDA	Nokia 9210i Communicator	O₂ xda
OVERALL RATING	100	94	91	95	103	104	106
Street price* (inc VAT)	£297 (£349)	£435 (£511)	£340 (£400)	£425 (£499)	£332** (£390)	£482 (£567)	£340*** (£400)
Supplier	Toshiba 01932 828828	Savastore.com	Handspring via website	Handspring via website	Vodafone via website	Expansys 0161 868 0868	O₂ via website
Supplier's website	www.toshiba.co.uk	www.savastore.com	www.handspring.co.uk	www.handspring.co.uk	www.vodafone.co.uk	www.expansys.com	www.o2.co.uk
Manufacturer's website	www.toshiba.co.uk	www.toshiba.co.uk	www.handspring.co.uk	www.handspring.co.uk	http://thenew.hp.com	www.nokia.co.uk	www.o2.co.uk
Basic warranty	1yr RTB	1yr RTB	1yr RTB	1yr RTB	1yr RTB	1yr RTB	2yrs RTB
Size W x D x H (mm)	80 x 12 x 125	79 x 16 x 125	71 x 21 x 108	71 x 21 x 108	76 x 20 x 135	158 x 56 x 27	72 x 18 x 129
System weight with battery (g)	147	181	148	152	221	246	187
CORE COMPONENTS							
CPU and speed	300MHz Intel PXA250	400MHz Intel PXA250	33MHz DragonBall	33MHz DragonBall	133MHz Texas Instruments OMAP 710	32-bit ARM9-based RISC	206MHz Intel StrongARM
RAM (MB)	64	64	16	16	64	16	32
ROM (MB)	32	32	Not stated	Not stated	32	24	32
DISPLAY							
Display type, number of colours	TFT, 16-bit colour	TFT, 16-bit colour	TFT, 16-greyscale	STN, 12-bit colour	TFT, 16-bit colour	TFT, 12-bit colour	TFT, 12-bit colour
Display resolution W x H (pixels)	240 x 320	240 x 320	160 x 160	160 x 160	240 x 320	640 x 200	240 x 320
Display dimensions W x H (mm)	54 x 71	54 x 71	48 x 48	49 x 49	54 x 71	107 x 34	53 x 70
Backlight/frontlight	✔	✔	✔	✔	✔	✔	✔
BATTERY							
Main battery	Lithium ion	Lithium ion	Lithium ion	Lithium ion	Lithium polymer	Lithium ion	Lithium polymer
Rechargeable	✔	✔	✔	✔	✔	✔	✔
Rechargeable without cradle	✔	✔	✔	✔	✔	✔	✔ (via adaptor)
Removable (cost if applicable)	✘	✔ (£45)	✘	✘	✔ (£TBC)	✔ (£32)	✘
Manufacturer's quoted battery life	10 hours	8 hours	Up to: 2.5 hours' talk time, 100 hours' standby	Up to: 3 hours' talk time, 150 hours' standby	Up to: 5 hours' talk time, 150 hours' standby	Up to: 10 hours' talk time, 230 hours' standby	Up to: 3.5 hours' talk time, 150 hours' standby
Backup battery	✘	✘	✘	✘	✔	✔	✘
AUDIO							
Internal microphone	✔	✔	✔	✔	✔	✔	✔
Internal speaker	Speaker	Speaker	Speaker	Speaker	Speaker	Speaker	Speaker
Earphone jack	✔	✔	✔	✔	✔	✘	✔
Vibrating alarm	✘	✘	✔	✔	✘	✘	✔
Bundled earphones	✘	✘	✔	✔	✘	✘	✔
SOFTWARE SUPPLIED							
Operating system	Pocket PC 2002	Pocket PC 2002	Palm OS 3.5.2H	Palm OS 3.5.2H	Pocket PC 2002 Phone Edition	Symbian 6	Pocket PC 2002 Phone Edition
Upgradeable operating system	✘	✘	✘	✘	✘	✘	✘
Bonus software for PDA	✘	ATi Presentation Pack	PhoneBook, Date Book Plus, SMS Messages, Blazer web browser, CityTime world clock	PhoneBook, Date Book Plus, SMS Messages, Blazer web browser, CityTime world clock	HP Applications	RealOne Player	O₂ content CD
Bonus software for PC	Outlook 2000	Outlook 2000	Palm Desktop	Palm Desktop	Outlook 2002	Nokia PC Suite	Outlook 2002
COMMUNICATIONS							
Connection type	USB docking cradle	USB docking cradle	USB cable	USB cable	USB/serial docking cradle	Serial cable	USB docking cradle
Wireless technology	Infrared	Infrared****	Infrared	Infrared	Infrared	Infrared	Infrared
Card support	SD	SD, CompactFlash Type II	✘	✘	SD/MMC, CompactFlash Type I	SD/MMC	SD/MMC
Telecoms support			GSM (900/1800), free GPRS upgrade	GSM (900/1800), free GPRS upgrade	GSM (900/1800), GPRS (4+1)	GSM 900/1800, HSCSD	GSM (900/1800), GPRS (4+1)
EXTRAS							
Keyboard (dimensions, W x H)	✘	✘	64 x 25mm	64 x 25mm	Optional (£TBC)	142 x 47mm	✘
Others	✘	Expansion pack (£20)	✘	✘	✘	✘	✘

*All prices were correct at time of going to press, but are subject to change. PDA/phone prices are without a contract unless otherwise stated. **With Vodafone contract. ***With O₂ contract. ****Bluetooth or 802.11 depending on version.

How we test

Details of our comprehensive testing for PDAs to make sure the right devices win

More than any other device we test, PDAs are a matter of taste. That's why we don't rely on just one or two people's opinion. On this occasion, we assembled ten of *PC Pro*'s editorial team to give their collective judgement (a mark between one and six) on screen quality, build quality, perceived performance, design and much, much more. Each member of the team had been using at least one of the PDAs over a period of two to three weeks, and they measured battery life during typical usage — battery life was then also rated.

After each PDA is given a numerical rating in these areas, we add the results up to give an overall quality score. This is then compared to the average of all the PDAs' scores to give the result you see at the bottom of each review. If the score is more than 100, it's above average; less, and it's below average.
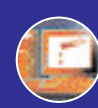
The features score is gathered in a similar way. PDAs gain extra points for high-resolution screens, colour rather than mono, expansion slots, external options, removable batteries and built-in keyboards. In total, there were 23 ways for the PDAs to gain feature points.

We also include PDA/phones in this round-up, and we rate these against each other rather than against the 'lone' PDAs. Although all these devices are given a quality score in the same way, there are also extra options such as sound quality and reception. Their features score also includes GPRS support (and the speed of the connection), plus their sheer 'phoniness' — would you want to use it as your main phone?

Because two of the PDA/phones are only available with a contract at the moment, when we compared the five entrants for value we levelled the playing field by using their price with a contract.

We give four awards in this Labs. The main award is to the Labs Winner, the PDA that provides the best combination of quality, features and price. We also give two Recommended awards — one to a PDA that makes the best alternative to our Labs Winner, the other to the best PDA/phone. Finally, we give a self-explanatory Best Value award.

Which operating system?

We take a closer look at what the different operating systems offer

Asking which is better, Pocket PC or Palm, is rather like asking whether George Best was a better footballer than Pelé. They both have their strengths and their weaknesses. Which you prefer is down to personal preference and how you intend to use your PDA. But to make your choice easier, we've focused on the most crucial aspects of a PDA's performance below.

BATTERY LIFE

Although battery life depends on many things – processor speed, backlight power consumption and battery capacity, to name but three – the biggest linking factor is the operating system. In general, a colour Palm will last well over a week on a single charge, while colour Pocket PC devices give up the ghost after four or five days (this assumes usage of around 30 minutes per day and that the backlight is usually on).

To back this up with figures, the Palm m515 kept going for six to seven hours in our general-use tests, while none of the Pocket PC machines lasted for more than three hours. Our rogue Linux user, the Sharp Zaurus SL-5500, lasted for just over three hours. If battery life is of major importance to you, though, opt for a mono Palm device. These rarely need the backlight to be switched on, and both the Palm Zire and Sony CLIÉ PEG-SL10 lasted for weeks.

EASE OF USE

With the advent of Pocket PC 2002, Microsoft managed to catch up some lost ground to Palm when it came to ease of use. However, its habit of hiding programs and settings in folders makes it harder to find what you're looking for. This also means that reaching your chosen

destination involves more clicks than it should. Microsoft could learn from Sharp here, as its implementation of Linux provides a Windows-like way of accessing programs, but also tabs the different types of program at the top of the screen, making them easy to find.

But Palm is the winner with regards to ease of use, as all you need to understand is that Palm groups programs and settings in categories. You then select your chosen category from a pull-down menu and go.

INTEGRATION WITH OUTLOOK

It should be no surprise that Microsoft wins here. After all, it includes Pocket Outlook as part of the Pocket PC OS, and it knows all the secrets the desktop version has to offer. All the Pocket PCs include Outlook in the box too. But its biggest advantage over the others is live synchronisation – as an email arrives in your inbox, it will get transferred to your device.

In contrast, Palm devices (and the Sharp Zaurus) rely on you pressing the HotSync button on your PDA whenever you want to update. They also use third-party products like Intellisync to take care of Outlook-synchronising duties and, although it generally does a fine job, not all the information is necessarily transferred.

BUNDLED SOFTWARE

Palm is well aware that its PIM (personal information manager) apps are basic when compared to either Pocket Outlook or the third-party software on sale, but because its products do the job the company is loathe to develop them much further. Handspring and Sony both add something extra to their Palm offerings, with

Handspring's enhanced calendar app and Sony's image editor particularly noteworthy. It's also worth checking to see if a version of DataViz's Documents To Go is bundled, as this allows editing of Word and Excel documents on Palm-based devices.

Sharp's Linux bundles Hancom Word and Sheet for precisely this reason, and its PIM software is also impressive, although it assumes you already have Outlook on your PC. We also appreciate the Opera web browser, which is a match for Pocket Internet Explorer as bundled with the Pocket PCs. But Pocket PC still wins, thanks to it bundling Outlook plus Pocket Word, Pocket Excel and Pocket Outlook.
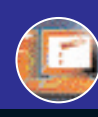
COMMUNITY AND SUPPORT

Palm's long history in the PDA field makes it the clear winner here, with a phenomenally large community actively writing programs or helping newcomers. This also means there's a huge legacy of downloadable software, which far outstrips that for Pocket PC. Having said this, if you can think of a type of software, chances are someone will have written it for both OSes (visit www.tucows.com for inspiration). Don't forget Microsoft's comprehensive online resources either, although support for each device varies considerably, and there isn't the same feeling of community you get with Palm.

Sharp is a relative newcomer, so there are fewer programs out there, but the company released a version of the Zaurus to developers long before it released the final device, so a large number of programs are already available. At www.myzaurus.com, it also provides free updates and patches as they become available.

At-a-glance comparison of features

	Palm OS 3.5H	Palm OS 4.1	Palm OS 5	Pocket PC 2002	Sharp Linux
Calendar	✔	✔	✔	✔	✔
Address	✔	✔	✔	✔	✔
To do	✔	✔	✔	✔	✔
Email	✔	✔	✔	✔	✔
Word processor	✘	✘	✘	✔	✔
Spreadsheet	✘	✘	✘	✔	✔
Presentation	✘	✘	✘	Read-only	Read-only
HTML browser	✘	✘	✘	✔	✔
Voice recorder	✘	✘	✔	✔	✔
AvantGo support	✔	✔	✔	✔	✘
Desktop PIM	Palm Desktop	Palm Desktop	Palm Desktop	Outlook	✘
Live synchronisation	✘	✘	✘	✔	✘

Asus MyPal A600

PRICE £359 (£422 inc VAT)
SUPPLIER dabs.com 0800 138 5182
VERDICT The thinnest, lightest Pocket PC, but there's no carry case, no docking cradle, and the battery life isn't as good as Asus claims.
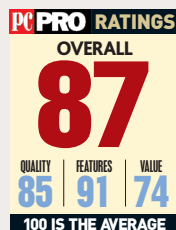
At a glance, you'd be forgiven for thinking the A600 was a Palm OS device, such are its tiny dimensions. Barely a centimetre taller than a Palm m500 and just 2mm thicker, Asus has a masterpiece of design on its hands, especially as the A600 weighs only 150g. The silver metal casing feels sturdy, but one big drawback is the lack of a screen cover as standard. You don't even get a docking cradle – just a USB cable.

On the whole, we liked the reflective TFT colour screen, but it isn't as clear as the Compaq iPAQ's. The maximum brightness was good, although on battery power it's best to turn this down by half to prolong battery life. When outdoors, particularly in sunny conditions, reading the screen is a tricky affair.

Although Asus claims 15 hours' battery life from the 1,200mAH lithium ion battery, this is with the backlight off. Unfortunately, this makes the screen almost unreadable, and you can expect around two and a half hours under normal use. This shows that the power-saving capabilities of the 400MHz XScale processor aren't all Intel promised they would be; nor is it as fast, as you'll only notice the difference to 206MHz units when playing movie clips.

With 64MB of RAM, there's decent storage out of the box, but an SD/MMC slot is the sole means of expansion. Since the A600 is a new device, there aren't many accessories available, although Asus plans to release a deluxe version of the MyPal with a docking cradle and more software.

We love the styling and lightness, but the lack of a screen cover means we wouldn't want to put it in our pocket, and its price is too high for what you get.

PC PRO RATINGS
OVERALL
87
QUALITY **85** | FEATURES **91** | VALUE **74**
100 IS THE AVERAGE

Compaq iPAQ H3950, H3970

PRICE 3950, £382 (£449 inc VAT); 3970, £449 (£528 inc VAT)
SUPPLIER 3950, dabs.com 0800 138 5182; 3970, Expansys 0161 868 0868
VERDICT If you're willing to trade poor battery life and bulk for the best PDA display around, this is the one to choose. But on all other counts, the iPAQ's dominance is under serious threat.

Compaq revolutionised the Pocket PC world with its first iPAQ, but since then we've seen only minor evolutionary tweaks. For example, the 3900 series of iPAQs is almost identical to the 3800 series, so they're still just as big – 17mm thick, 200g in weight – and only include an SD slot. When Fujitsu Siemens packs in a Type II CompactFlash and SD/MMC slot into its Pocket LOOX, which weighs just 173g, it makes you wonder if the iPAQ has had its day.

But the first thing to strike you about these iPAQs is the plastic snap-over protective cover that's attached to a removable sleeve. Its surface is a nirvana for forensic scientists, as it retains every single fingerprint. Once this cover is released and the unit powered on, however, Compaq can be forgiven almost everything. The display is outstanding and better than all other PDAs in this Labs.

This new transreflective display has two benefits. First, the colour rendition is superb. It's only when you put the new iPAQs alongside earlier units that you realise how muddy the colours on the older iPAQs really are and that they're incapable of displaying a true black. Second, holding the units at a slight angle no longer finds you apparently staring into side-mounted fluorescent tubes. The downside is that the display is harder to read in daylight when the backlight is dim or off.

Another evolutionary difference between the 3800 and 3900 series is their processor. The 3950 and 3970 are both based on Intel's 400MHz XScale processor, which is all well and good, but these iPAQs feel no faster than their 206MHz predecessors.

Both models include 64MB of RAM for storing your downloaded apps and files. However, they do vary in the amount of ROM supplied, with the 3950 including 32MB to the 3970's 48MB. Uniquely among all these PDAs, the iPAQs can use the ROM to save your vital data in the event of the battery running dry – the 3950 has 5.9MB to play with, the 3970 20MB. Compaq also supplies Image Manager and Nevo, a home automation application that lets you use the iPAQ's infrared port to control domestic electronics devices. This is fun as a novelty, especially as you can set it to 'learn' from an existing remote.

The built-in Bluetooth of the 3970 – the main thing that sets it apart from the 3950 – has a comprehensive set of configuration tools, including options for receiving PIM objects, setting up a default passkey and the designation of a contact as a business card. There's also a file-sharing option that can be set to a specified folder. The Bluetooth menu on the welcome screen gives direct access to ActiveSync over Bluetooth.
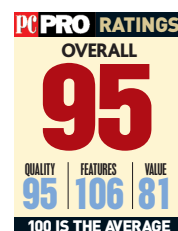
Connecting to other Bluetooth devices involves navigating the confusing Pocket PC 2002 Connection Manager. However, once configured, automatically connecting to a Nokia 6310i to access email over GPRS worked faultlessly.

The supplied cradle (which isn't compatible with the 3700 series) has side bars that slide down to make for more secure docking of the unit when it's in a sleeve. Even so, the physical connection always seemed a little tenuous, and just tapping the iPAQ's screen could cause ActiveSync to become disconnected. Both serial and USB connectors are provided on the same data cable, and the iPAQ can be charged either through the cradle or by plugging the power lead directly into the PDA.
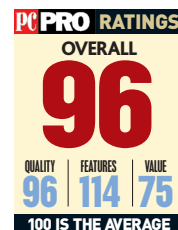
This ease of recharging is fortunate, as the iPAQ's battery life is nothing special. It only lasted for two hours in our general-use tests. One factor in the iPAQ's favour, though, is the vast amount of accessories available for it – GPS units, third-party keyboards and a digital camera, to name but a few. But these all add expense to an already expensive device. There's little doubt that the iPAQ's dominance is over, especially when Toshiba and Fujitsu Siemens are producing such fine devices.

Compaq iPAQ 3950
PC PRO RATINGS
OVERALL
95
QUALITY **95** | FEATURES **106** | VALUE **81**
100 IS THE AVERAGE

Compaq iPAQ 3970
PC PRO RATINGS
OVERALL
96
QUALITY **96** | FEATURES **114** | VALUE **75**
100 IS THE AVERAGE

Fujitsu Siemens Pocket LOOX 600

PRICE £355 (£417 inc VAT)
SUPPLIER Expansys 0161 868 0868
VERDICT Thanks to CompactFlash and SD slots, as well as integrated Bluetooth, the LOOX is a star among Pocket PCs.

Fujitsu Siemens may be a late entrant into the Pocket PC battle, but the LOOX 600 shows it means business. With integrated Bluetooth, plus slots for SD and CompactFlash cards, this PDA is better connected than Peter Mandelson. And if you're willing to pay the extra, there's even a GSM/GPRS plug-on adaptor.

Its Bluetooth charms were slightly reduced, however, when we tried to get it working (*see Bluetooth: dead or alive?, p181*). You may have to spend some time setting it up if you want to ActiveSync via Bluetooth, for example, although Fujitsu Siemens has set up a lively forum (**www.fujitsu-siemens.com/forum/index_loox.html**) that will help, and there are various unofficial sites.

We're also delighted to see an excellent external keyboard (*see p98*) already available. It may cost another £56, but this makes entering large amounts of text a joy, and also makes the LOOX viable as a companion for plane journeys. However, its battery life is underwhelming at just over two hours. Fortunately, you can buy a plug-on second battery for £49. In bright light conditions, the LOOX's screen is even readable without the backlight on (which will help you edge towards Fujitsu Siemens' ten-hour claims), but generally we recommend letting the LOOX's automatic brightness software take control.

As a piece of design, the LOOX falls behind rivals such as the Toshiba e740, and it's not the most compact PDA here either, despite its 173g weight. But it feels rugged, and we can't complain about the hardware inside. The 400MHz XScale processor and 64MB of RAM provide plenty of firepower and storage. With a respectable price of £355, this is our favourite of the fully featured Pocket PCs.

PC PRO RATINGS
OVERALL
101
QUALITY	FEATURES	VALUE
97	119	90
100 IS THE AVERAGE

Handspring Treo 90

PRICE £212 (£249 inc VAT)
SUPPLIER Handspring www.handspring.co.uk
VERDICT The Treo's highlights are its svelte dimensions, light weight and integrated keyboard, but its screen and price let it down.
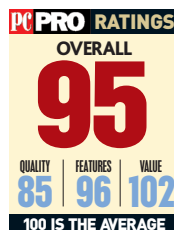
Handspring may have gained fame and fortune thanks to its Visor range with Springboard expansion, but in this new era of sleek PDAs with SD/MMC slots the company has recognised that its Visors are too bulky. The Treo 90 is its new Great Grey Hope, and it has various factors in its favour: it's slim, includes the requisite SD/MMC slot, it's extremely light (116g) and boasts a built-in keyboard.

The keyboard replaces the Graffiti pad of old, although you can buy an app (from **www.handspring.co.uk**) that allows you to write on screen — just beware that half your viewing area is consumed. We're happy with the keyboard though. Combined with your fingernail for navigating the touchscreen, or the nicely weighted stylus, it makes a quick and easy way to enter data.

Handspring sensibly bundles a version of WordSmith, a well-featured word processor. Otherwise, there are the typical extras of Handspring's adaptation of Palm's OS (like its enhanced DateBook), with the Treo running 4.1H.

The Treo 90 is a well-built device, with the lid protecting the screen adequately. It's just a shame the colour screen can't match that of the Palm m515, with the STN technology now looking poor compared to the TFTs we're used to. But it's still easy to read in most conditions; the only notable exception is bright sunlight.

If the Treo cost £150, or even £175, it would be very attractive — we love the fact it slips into a pocket so easily and that the battery lasts for a good week. But at £12 more than the m515, only those entering lots of data should choose it over the Palm.

PC PRO RATINGS
OVERALL
95
QUALITY	FEATURES	VALUE
85	96	102
100 IS THE AVERAGE

NEC MobilePro 300E

PRICE £318 (£373 inc VAT)
SUPPLIER NEC Computers 0870 010 6322
VERDICT In order for the MobilePro to be competitive, NEC needs to drop its price and include a carry case as standard.
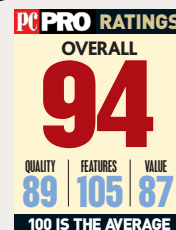
On first sight, the MobilePro 300E is a highly attractive proposition – it's thin at 14mm, weighs just 154g and is also the second cheapest Pocket PC here. But, on opening the box, you could be in for a nasty surprise – it doesn't include a protective jacket or screen cover, so isn't safe to put in your pocket or a bag. Cases are available as optional extras, but at a cost of £25.

NEC makes up for this to some extent thanks to the excellent docking cradle. As well as a slot for the device, there's a spare slot for a second battery, while a solid, clear plastic stylus is included for use when the device is docked. Sensibly, NEC also provides enough space so that one of the optional Rocketeer Packs can be left attached.

The Rocketeer Packs are a similar idea to the iPAQ's jackets. There are two versions – one for CompactFlash and the other for PC Cards – and both include batteries to make sure the main battery isn't drained. These complement the integrated SD/MMC slot nicely, but make the device bulky.

The screen is adequate under office lighting, but struggles in bright sunlight. With the backlight on, we found battery life was good for a Pocket PC at just over three hours for occasional use, while 'entertainment' use — movie viewing, game playing and listening to MP3s — reduced this to two hours. If you do intend to stretch your PDA, note that the 300E only includes a 206MHz processor, not one of the new XScale chips. This doesn't make much difference at the moment, but it could if apps come along that take advantage of extra instructions.

The problem for NEC is that Toshiba's e330 does include an XScale processor, while remaining sleek and light. Vitally, it offers screen protection as standard too.

PC PRO RATINGS
OVERALL
94
QUALITY	FEATURES	VALUE
89	105	87
100 IS THE AVERAGE

Palm m500

PRICE £149 (£175 inc VAT)

SUPPLIER Technomatic 0870 516 8671

VERDICT The m500's great design and new, lower price make it superb value despite its age.

A year has passed since we last looked at the m500 (*see Labs, issue 87, p94*), yet it's still as desirable as it was when we awarded it an Honourable Mention. Two of *PC Pro*'s editorial team bought the m500 a year ago, so we can confirm that it thoroughly deserved the award.

Palm OS 4 is as intuitive as ever, and performance from the 33MHz DragonBall CPU never leaves you waiting. The 8MB of on-board memory is still plenty for storing all your contacts, appointments and other apps and games. If it ever fills up, there's always the SD/MMC slot, which can also take a Bluetooth module. Flexibility is reasonable, as there are several keyboards, a GPS unit and other accessories available for the m5xx series.

The mono screen is starting to look dated against newer, high-resolution models like the Sony CLIÉ PEG-SL10, and the backlight doesn't compare either. But it's still readable both indoors and out.

Generally, the m500 still looks stylish and its all-metal casing and leather-effect screen protector make it one of the toughest PDAs on test. Along with its slim dimensions, the m500 is one of the most portable too – it's light enough to carry almost unnoticed in a coat pocket.

Another of the Palm's biggest advantages is the long battery life. In normal use, even up to an hour each day, the m500 will last and last, only requiring a charge every few weeks.

Documents To Go Professional Edition 3 allows basic editing of Word and Excel files, and Palm Reader is another handy utility. With the m500's price dropping to £150, it's a more attractive proposition than ever, but the Sony CLIÉ PEG-SL10 and Palm Zire offer better value still.

PC PRO RATINGS
OVERALL
107
| QUALITY | FEATURES | VALUE |
| 116 | 77 | 136 |
100 IS THE AVERAGE

Palm m515

PRICE £200 (£235 inc VAT)

SUPPLIER Jungle.com 0870 728 7777

VERDICT A great PDA that offers well thought-out design, portability and superb battery life at an affordable price.

Although eclipsed by the new Palm Tungsten T, Palm's previous king of the castle is still a great PDA. It may not have the Tungsten's high-speed processor, but the 33MHz Motorola DragonBall is more than adequate for Palm OS 4.1.

In fact, with its fast and responsive colour TFT screen, the m515 is quicker than the mono m500 with the same processor. The screen itself isn't up there with the HP iPAQ 3970, and has disappointing viewing angles, but with two backlight settings it's fine for dark tube journeys. The m515 can also deal a hefty blow back to the iPAQ with its superior sturdy docking cradle and incredible battery life of between six and seven hours under everyday use.

The 16MB of memory supplied is more than enough. We still had 10MB free after loading over 2,000 emails, various games, and the supplied AvantGo and Documents To Go Professional Edition 4, which lets you take Word, Excel and PowerPoint documents on the move.

With a slimline depth of 13mm, this is undoubtedly one of the most portable PDAs on test and it offers great aesthetic design. Little touches, like the cover sliding into a side slot and taking up minimal space help, add protection too. Packing so much into a small space has the inevitable downside of fewer features, but an SD/MMC slot provides memory expansion and can take the Palm Bluetooth SD Card (*see Reviews, issue 92, p135*) too.

It's also worth taking advantage of the Universal Connector, with the Palm Portable keyboard (*see p98*) one option. As standard, the m515 uses the Graffiti input method, although the Tungsten's pad was more responsive. Otherwise, the m515 offers everything you need from a PDA for a mere £200.

PC PRO RATINGS
OVERALL
108
| QUALITY | FEATURES | VALUE |
| 112 | 98 | 125 |
100 IS THE AVERAGE

HP Jornada 728

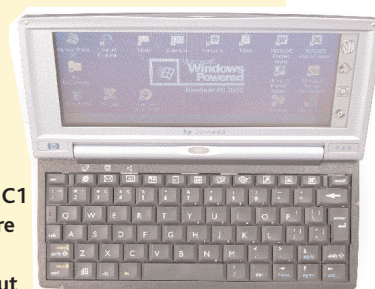**PRICE** £549 (£645 inc VAT)

SUPPLIER dabs.com 0800 138 5182

With the demise of Psion's handhelds and NEC withdrawing its Mobile Pro 790, the Jornada 728 is the only remaining 'proper' keyboard PDA. Unlike the all-singing, all-dancing palmtops starting to appear, the 728 is aimed squarely at professionals. The 11 shortcut keys above the keyboard launch apps like Pocket Word, Excel, Access and Inbox, while the Handheld PC 2000 OS lacks Pocket PC's friendliness.

It's a serious tool too. With a Type II CompactFlash and PC Card slot, you can add a wireless network or GPRS card with ease, while the V.90 modem guarantees connectivity all over the world. Travellers will also be pleased by the 728's superb battery life of around five hours, even with the backlight on.

What lets it down is the size of the keys on the keyboard. And the bad news for the 728 is that there are now some viable and affordable alternatives. You can buy superb add-on keyboards for Pocket PCs that allow for perfect touch-typing and weigh just 200g.

However, if you edit spreadsheets or type documents, you'll appreciate the wide screen and 640 x 240 resolution. But this is where the ultra, ultra portable enters the frame, like Sony's VAIO C1 series. They're twice as expensive, but boast a full OS, larger screen and larger keyboard, and weigh a mere 1kg.
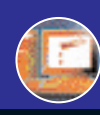
Of course, none of these alternatives can match all the 728's features, but a comparative lack of add-on programs for the Handheld PC 2000 OS and its uncertain future make it difficult to recommend. But if you do want it, buy quickly, as HP isn't guaranteeing the 728's life into 2003.

PC PRO HP JORNADA 728

SPECIFICATIONS 206MHz Intel StrongARM processor, 64MB of RAM, 640 x 240 pixel 16-bit colour STN LCD, IrDA port, slots for Type II PC Card, Type II CompactFlash card and smart card. Dimensions: 189 x 95 x 34mm (W x D x H). Weight: 515g.

Palm Tungsten T

PRICE £340 (£400 inc VAT)

SUPPLIER Palm 020 7365 9820

VERDICT With blistering performance, a superb screen, industrial-level build quality and integrated Bluetooth, Palm blasts the opposition away.

Palm has had its critics in the last year, with the company falling behind its rivals when it came to releasing new, exciting products. While Sony produced a stream of multimedia, high-resolution CLIÉs, the m515 remained the pinnacle of Palm's range. Fortunately for Palm, the Tungsten T goes a long way to making the wait worthwhile. Take the screen, which looks a league above that of the Palm m515; only the iPAQ's is better. Even without the backlight on, it's visible in most conditions, while sliding the backlight control to its maximum setting produces a vibrant image.

The Tungsten T also benefits from a high 320 x 320 resolution, which is the first sign of Palm OS 5. This has been enhanced to make text more readable, and it works. There are even some minor graphical enhancements to built-in apps like Date Book, but nothing to get too excited about.

DataViz's Documents To Go 5 suite does make full use of the high-resolution screen, with Sheet To Go now much more usable — you can see five columns at once, for example, and the character edges are smooth and easy to read. It's a similar story for Word and SlideShow To Go.

But perhaps the most striking thing about the Tungsten is its speed. We thought the Sony CLIÉ PEG-NR70V was fast, but the Tungsten brings performance to a new level. Apps launch virtually before you lift the stylus from the screen, and Graffiti lovers will find themselves writing even faster due to the increased speed of recognition. The added speed is thanks to Palm OS 5's support for ARM processors, with the Tungsten using a 144MHz chip from Texas Instruments.

We were also struck by the Tungsten's build quality — even the new stylus has a quality feel. Made entirely from metal, the Tungsten's case feels like it could survive quite a few direct bashes and the occasional fall. Palm V and m500 owners might be disappointed that the mock-leather screen cover has been scrapped, though. Instead, a transparent, plastic lid snaps in place — on the front for protecting the screen when travelling, on the back when you're using it. This means it's relatively easy to lose, and it picks up greasy marks. But it does allow you to read the screen with the protector in place, and pressing the new button in the centre of the direction pad flashes up the current time.

Palm also concentrates on compactness with its new design. The Graffiti area is generally covered by a drop-down panel that holds the shortcut keys — a possible weak point, we thought, but the mechanism feels incredibly rugged. This reduces the Tungsten's height to 101mm. However, the payback comes in the Tungsten's thickness: 15mm as opposed to the m515's 13mm, which doesn't sound much but is noticeable in practice. It's slightly heavier too, at 155g to 139g.

Portability again took a knock because the Tungsten's battery life was a little lower than we'd hoped for. Whereas the Palm m515 survived for six hours in general use with the backlight on, the Tungsten could only manage four hours. Thankfully, switching the backlight off will increase this significantly, and even this reduced lifespan remains superior to its Pocket PC rivals.

We were a little surprised that Palm includes 16MB of RAM rather than 32MB, missing a chance to lift itself clear from the pack of chasing CLIÉs. Naturally, there's an SD slot for expansion, but, with better sound quality and an earphone jack, you may yourself filling the memory with space-consuming multimedia files. For example, use the voice recorder facilities and after two minutes nearly all that space will be consumed.

There's no need to fill the SD slot with the Palm Bluetooth SD Card, as Palm integrates this into the device. It's one of the best implementations of Bluetooth we've seen too, with a step-by-step Wizard making it easy to connect with your phone, for instance. If you use the Tungsten for mobile web browsing and email access, you might also appreciate Palm OS 5's enhanced security, which includes 128-bit data encryption and SSL services.

There are some disadvantages to the new OS. Not all applications will support it, including the software for the Palm Portable Keyboard. This is a particular shame, as the Tungsten T shares the Universal Connector of the m5xx series.

But with all the other enhancements on show, Palm's Tungsten T is the clear winner in our Labs this month, even taking the sizeable asking price into account.

PC PRO RATINGS

OVERALL

114

QUALITY	FEATURES	VALUE
124	119	106

100 IS THE AVERAGE

Palm Zire m150

PRICE £65 (£76 inc VAT)

SUPPLIER dabs.com 0800 138 5182

VERDICT A well-made, well-designed PDA with all the features most people need, even if it lacks expandability and frills.

The Zire's emphasis is on simplicity and value, so Palm has priced it aggressively. With street prices as low as £65, it's bound to attract buyers who'd otherwise choose a conventional electronic organiser.

They won't be disappointed either. With Palm OS 4.1 in place, all the usual PIM features are here together with full synchronisation with your desktop PC, using either Outlook or the supplied Palm Desktop. But the biggest advantage the Zire holds over organisers is the huge amount of third-party software available.

This is a well-built piece of kit too. Not only does it look chic, but the off-white plastic chassis should survive a fair deal of abuse. A flexible plastic cover protects the screen, and it's a screen worth protecting too. It may lack a backlight, but the contrast is excellent, making the display easy to read in all but the darkest conditions.

Another great feature is the Zire's weight. At just 106g (128g with the screen cover), you'll barely notice it in your pocket. It's slim too, with the rechargeable lithium ion battery helping Palm to keep it streamlined. Some people prefer AAA batteries, but as the Zire can keep going for a month under normal use, and keep your data secure for a further week, we're happy with Palm's choice.

We wouldn't recommend this PDA to Palm enthusiasts, as its 2MB of RAM and lack of memory slots will prove restrictive. It also feels a tad slow compared to the latest CLIÉs and the m5xx series, and note the USB cable for synchronising rather than a docking cradle. But if you want a full-blown PDA for little money, it's a great buy.

PC PRO RATINGS

OVERALL

101

QUALITY	FEATURES	VALUE
103	45	143

100 IS THE AVERAGE

Sharp Zaurus SL-5500

PRICE £300 (£352 inc VAT)

SUPPLIER Technomatic 0870 516 8671

VERDICT The Zaurus is a bargain at £300, especially now Sharp is including an extra 64MB of memory via a CompactFlash card.

The Zaurus blasted its way onto our A List when we first reviewed it (*see Reviews, issue 93, p124*), and on second examination it's lost none of its charm. While all the other PDAs use cut-down OSes, the SL-5500 takes advantages of Linux's low CPU demands to create a true pocket PC.

In fact, this PDA teaches Microsoft a thing or two about creating a Windows-like experience. Even the cascading menu system bears a striking resemblance to XP, while Hancom's Word and Sheet apps look more like Word and Excel than Microsoft's official Pocket versions. Add the Java engine and a solid combination of calendar, contacts manager and email client, and you have a powerful set of tools out of the box.

This is a versatile piece of hardware too. Not content with character recognition and an on-screen keyboard, Sharp has built a QWERTY keyboard into the device – the panel containing the shortcut and scroll keys simply slides down. This is great for entering short bursts of data. With a bright screen that matches all the Pocket PCs bar the iPAQ 3900 series, plus an integrated SD and CompactFlash Type II slot, we certainly can't complain about the Zaurus' hardware.

An unofficial team of enthusiasts are making sure there's software and support to match too; this is the benefit of open-source code. Another benefit is the Zaurus' price. Considering the high specification, which includes 64MB of RAM and a 206MHz processor, £300 is a bargain.

Also, if you send proof of purchase to Sharp, you'll get a 64MB CompactFlash card plus a three-in-one car, USB and on-the-go charger in return.

PC PRO RECOMMENDED

PC PRO RATINGS

OVERALL
112

QUALITY	FEATURES	VALUE
110	133	113

100 IS THE AVERAGE

Sony CLIÉ PEG-NR70V

PRICE £339 (£398 inc VAT)

SUPPLIER Savastore.com www.savastore.com

VERDICT Is it a PDA? An MP3 player? A camera? No, it's all three! Fun to use and well built, the NR70V is almost irresistible.
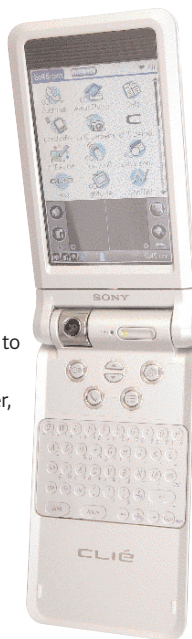
If you're looking for a PDA with a difference, the NR70V is virtually impossible to resist. Its most striking feature is the swivelling lid, which lets you use the CLIÉ in conventional palmtop mode or with the keyboard. This makes a useful alternative to Graffiti for entering data, although it isn't as enjoyable to use as the Handspring and Sharp equivalents. Even better, the keyboard panel acts as a superb screen protector.

And this is one screen worth protecting. Apart from its bright, clear display, the 320 x 480 screen is the highest resolution here, although the bottom third is usually occupied by the electronic Graffiti pad. This has the added benefit of showing you the characters just written, making it even easier to use.

The camera is slightly gimmicky – after all, a 320 x 240 resolution is worse than most webcams – but its quality is surprisingly good. It also adds a fun dimension to the CLIÉ, and that's what this PDA is all about. You can even use it as an MP3 player, with the supplied earphones (complete with remote control) up to Sony's usual high standards.

With a 66MHz processor and 16MB of RAM ensuring that all the usual PIM functions are coped with easily, and a Memory Stick slot for adding memory or even Bluetooth, the NR70V also wins on flexibility. Sony has even released a gamepad that fits on the bottom of the device (*see Go go gadget gifts, p173*).

The final touches are decent battery life – it lasts a good week, even with the backlight on – and a strong software bundle that includes Documents To Go 4 Standard and Sony's own multimedia-orientated apps. The CLIÉ's only problem is its price, but if you can afford it you won't be disappointed.

PC PRO RATINGS

OVERALL
105

QUALITY	FEATURES	VALUE
112	111	97

100 IS THE AVERAGE

Invair Filewalker

PRICE £417 (£490 inc VAT)

SUPPLIER POS 020 8677 9246

Considering the dominance of the palmtop form factor, it takes a brave company to try something new in the PDA arena, but Invair does precisely this with its Linux-based Filewalker. It's been designed for one-handed use, and the input method involves a scroll wheel positioned for the thumb and three main buttons on the left side representing Enter, Back and Menu.

A sound premise, but you need to be dextrous to use the device with any fluidity and it takes practice. Text input is very challenging, using a three-tiered band of characters (scrolled using the thumb wheel), with characters selected by pressing the corresponding button on the side, one for each tier. Sadly, this system is as complicated as it sounds.

In terms of software, there are the usual suspects like Addressbook, ToDo and Calendar as well as a POP3 mail app. You can synchronise these apps with Outlook using the supplied USB cable, but the software supplied is crude and difficult to use.

Other apps are limited by its size, which is roughly the same as a cigarette packet. The main limitation is the 42 x 63mm screen, although the resolution of 160 x 240 pixels is good. There's an SD/MMC card slot for backup – a good thing, as the two AAA batteries lasted only two weeks under light use.

The Filewalker is a brave attempt to define a new PDA form factor, and its size and weight both add to its appeal. However, it costs far too much and is beaten hands down by recent efforts from Palm and Sharp.

PC PRO INVAIR FILEWALKER

SPECIFICATIONS 133MHz Intel StrongARM processor, 32MB of RAM, 16MB Flash ROM, 160 x 240 pixel 16-greyscale LCD, IrDA port, USB port, SD/MMC card slot. Dimensions: 54 x 19 x 86mm (W x D x H). Weight: 98g.

Keys to success
We round up a selection of keyboards available for the different PDAs

COMPAQ MICRO KEYBOARD
PRICE £39 (£46 inc VAT)
SUPPLIER Technomatic 0870 516 8671

Thumb typists should quickly get to grips with the 59g Micro Keyboard, with all the most used characters and symbols easy to access. There are also shortcuts for the Calendar, Contacts, Inbox and iTask buttons, as these are covered by the keyboard when in place. But it's expensive when compared to the Saitek Mini Keyboard.
Works with the iPAQ H3800 and H3900 series.
★★★☆☆☆

COMPAQ IPAQ FOLDABLE KEYBOARD; FUJITSU SIEMENS EXTERNAL KEYBOARD
PRICE Compaq, £80 (£94 inc VAT); Fujitsu Siemens, £56 (£66 inc VAT)
SUPPLIER Expansys 0161 868 0868

They may have different names, but these keyboards are fundamentally the same, with the only difference being the connectors and colouring. Their similarity is a good thing too, as this is the cream of the add-on keyboard crop, with the 200g PDA-sized casing opening to produce a near full-size keyboard. The keys feel good, there are many shortcuts and it even packs a certain amount of 'wow' factor due to the way it unfolds. Unlike the Palm Portable Keyboard, you can also use them on your lap. The Compaq version is overpriced, though.
Compaq version works with the iPAQ H3800 and H3900 series; Fujitsu Siemens version works with Pocket LOOX 600.
★★★★★★

HP JORNADA POCKET KEYBOARD
PRICE £37 (£43 inc VAT)
SUPPLIER HP http://thenew.hp.com

This is the most ingenious of all the keyboards here – it replaces the Jornada WDA's cover, locking on using the connector at the bottom, and at 48g doesn't add much bulk either. Although the keys aren't particularly large, they make a fine way to enter short bursts of text. We expect the price to be about £40, making it reasonable value too. The only problem is that the shortcut keys are covered up, and there's nowhere on the keyboard area to replace them.
Works with the HP Jornada 928 WDA.
★★★★☆☆

PALM PORTABLE KEYBOARD
PRICE £69 (£81 inc VAT)
SUPPLIER Expansys 0161 868 0868

The 235g Palm Portable Keyboard has much in common with the Compaq and Fujitsu Siemens external keyboards, with its rugged case opening up to reveal a large typing area. The keys have a nice feel to them, but it loses out to the Compaq and Fujitsu Siemens equivalents due to the position for the PDA being to the left of the keyboard rather than the middle, a lack of shortcut keys and the fact that when you sit it on your lap it has a tendency to fold in half. We also couldn't get it to work with the Palm Tungsten T.
Works with the Palm m5xx series.
★★★★☆☆

POCKETOP WIRELESS KEYBOARD
PRICE £68 (£80 inc VAT)
SUPPLIER Widget 0800 138 1639

We had great hopes for the Pocketop Wireless Keyboard – 'free yourself from cables' it promises, thanks to its infrared connection. It's also very light, at 111g, despite its well-sized keys. But setting it up proved to be a real hassle. With certain PDAs, you'll need to support them with the bundled stylus, others require you to turn them upside down (the supplied software reverses the screen on your PDA), and for the rest you need to use the supplied stand, complete with reflector. Although we did get it to work sporadically with several different PDAs, we found this keyboard too frustrating to recommend.
Works with the majority of PDAs – check www.pocketop.net
★☆☆☆☆☆

SAITEK MINI KEYBOARD
PRICE £25.50 (£30 inc VAT)
SUPPLIER Saitek www.saitek.co.uk

Saitek successfully undercuts Compaq's own Micro Keyboard with the cunningly titled Mini Keyboard. Although it can't match its rival's rugged feel, and it uses rubberised rather than solid keys, the Saitek's clear layout makes typing slightly easier. And there's even a scroll wheel at the back. If you own an H3800 or H3900 iPAQ, and you want an alternative way of entering data, this 63g addition is a good buy at £25.50.
Works with iPAQ H3800 and H3900 series.
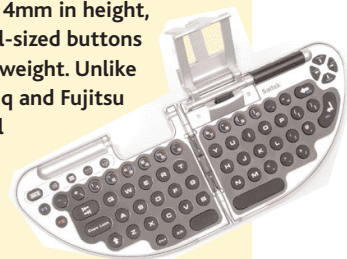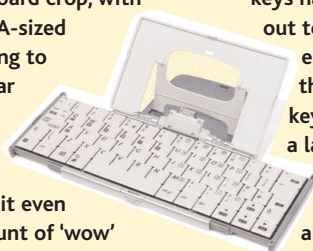★★★★☆☆

SAITEK SLIMLINE KEYBOARD
PRICE £34 (£40 inc VAT)
SUPPLIER Saitek www.saitek.co.uk

Designed for the iPAQ H3800 and H3900 series (Palm versions for the m100, m5xx series and Tungsten T are due out in November), Saitek has just released this Slimline keyboard. It folds down to a neat 14mm in height, and includes well-sized buttons despite its 171g weight. Unlike the Palm, Compaq and Fujitsu Siemens external keyboards, it's made up of two sections rather than four, so doesn't fold up so compactly (and doesn't sit on a lap), and it also has a rubberised rather than solid keys. We're not too keen on the key layout either, with a split spacebar and smaller keys than its rivals. The biggest factor in its favour is a relatively low price.
Works with iPAQ H3800 and H3900 series.
★★☆☆☆☆

Sony CLIÉ PEG-SL10

PRICE £109 (£128 inc VAT)
SUPPLIER Technomatic 0870 516 8671
VERDICT The SL10 is a good budget choice thanks to its high-resolution screen and 8MB of memory.

Sony's new SL10 is aimed squarely at the budget end of the market. The mono screen and plastic casing give the game away, but a hard cover protects the screen. Our only gripe is that it flips over the top, covering the power button, Memory Stick slot and infrared port. Plus, we're unsure how much punishment the plastic clips on the cover will take before snapping off.
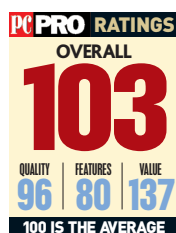
When used without the backlight, the screen can be hard to read in low light, but under office lighting it's much sharper and better contrasted than the m500. Outside in sunlight, its mirror-like reflectivity makes viewing difficult. The backlight is far better than the Palm m500's, though, and means you can still use the SL10 in darkness. The 320 x 320 resolution is also a bonus.

Another of the SL10's highlights is that it takes two AAA batteries, so it's easy to replace them when travelling and they give excellent battery life. No cradle is supplied, so synchronisation is achieved with a direct USB connection. This isn't a huge hardship, although we miss a cradle's convenient HotSync button.

Performance wasn't too sprightly – noticeably slower than the Palm m500, in fact. This appears to be due to the slow refresh of the screen rather than the 33MHz CPU. It shouldn't prove too frustrating in general use, though.

Surprisingly, given the price, Sony includes Documents To Go, but the usefulness of the bundled image-editing, viewing and movie apps on the mono screen is more dubious. With 8MB of memory, the expansion potential of the Memory Stick slot and the optional mini-keyboard, the SL10 is a good alternative to the Zire, but if you don't need these or a backlight the Zire is the better choice, costing more than £40 less.

PC PRO RATINGS
OVERALL
103
QUALITY 96 | **FEATURES** 80 | **VALUE** 137
100 IS THE AVERAGE

Sony CLIÉ PEG-T675C

PRICE £268 (£315 inc VAT)
SUPPLIER Expansys 0161 868 0868
VERDICT It's stylish and boasts a host of multimedia features, but there are some areas where Pocket PC devices still beat it.

One look at Sony's newest CLIÉ could be enough to make you reach for your wallet. Apart from the stylish silver finish, from the moment you turn it on the bright, 16-bit colour screen gives the impression of sheer quality.

It's also lightweight, well built and small enough to fit comfortably in your pocket, where its covering flap will protect the screen. Browsing through email and addresses is quick and easy, and searching for individual items isn't a chore once you've got the hang of Graffiti.

The colour screen presents AvantGo in its best light, while reasonable expandability options, including a Memory Stick camera, mini-keyboard and game controller, allow you to add extra dimensions to the CLIÉ.

Most people will find basic tasks a breeze, while Sony's website is adept at walking CLIÉ owners through slightly more complicated tasks such as transferring picture, video and audio files onto the handheld.

The majority of the software bundle, which includes PictureGear, gMovie, Documents To Go 4 Standard and PhotoStand, is focused on turning the handheld into a media device. Unfortunately, this is slightly ambitious, as the T675C's performance when displaying image files lets it down when compared to the Pocket PC devices, with too much pixellation ruining their impact.

We were also a little disappointed with a battery life of under four hours in our typical-use tests, which can't match the Palm m515, but it does beat the Pocket PC devices. If you want multimedia features, though, the T675C is the most affordable device around, making it an extremely strong alternative to the award winners.

PC PRO RATINGS
OVERALL
101
QUALITY 105 | **FEATURES** 98 | **VALUE** 103
100 IS THE AVERAGE

Toshiba e330

PRICE £297 (£349 inc VAT)
SUPPLIER Toshiba 01932 828828
VERDICT A stylish, sleek and well-made PDA, that's also priced more reasonably than many of its rivals. An excellent choice if you're looking for a basic Pocket PC.
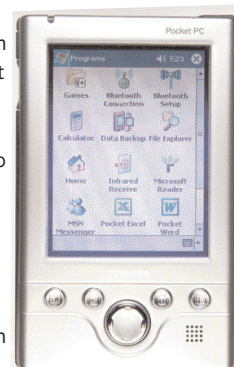
We hailed Toshiba's e310 (*see Reviews, issue 93, p123*) as a great piece of design when it was released six months ago, and this update continues in precisely the same stylish vein – in fact, the chassis is identical, which is no bad thing considering its 12mm depth and brushed aluminium finish.

The biggest change is the 300MHz XScale processor that replaces the 206MHz chip in the e310, but don't expect greater speed in use. In fact, we'd find it hard to tell the difference between the two. Still, the e330 is comfortably fast enough for everyday tasks, and it also coped with video playback using Pocket TV. Not content with upgrading the processor, Toshiba doubles the RAM to 64MB, with an SD slot at the ready for adding more. But there's no room for CompactFlash cards, unlike the more advanced e740.

The e740's ATi Imageon graphics are also absent from the e330, which means Toshiba's Expansion pack won't work. The e330 also lacks add-ons like a keyboard. However, you can hook up USB peripherals using the optional USB host cable.

But the e330 will mostly appeal to those looking for a basic but highly portable Pocket PC, and at 147g it's certainly the latter. Although the mock-leather carry case adds a certain amount of girth, it will easily fit into a suit pocket. When it comes to battery life, though, the e330 suffers from precisely the same problems as all Pocket PCs, only lasting for three hours in our tests. Switching the backlight off will increase this, but we're still sceptical about the ten hours Toshiba claims. The screen generally needs the backlight on anyway, and with this at maximum the e330 boasts a bright, sharp, easy-to-read image.

What sets the e330 apart from its Pocket PC rivals is the price. Although £297 is still high compared to, say, the £200 Palm m515, it makes this Toshiba a far more tempting proposition than its nearest rivals from Asus and NEC.

PC PRO RATINGS
OVERALL
100
QUALITY 102 | **FEATURES** 99 | **VALUE** 100
100 IS THE AVERAGE

Toshiba e740

PRICE e740, £435 (£511 inc VAT); e740 Bluetooth, £465 (£546 inc VAT); e740 WiFi, £429 (£504 inc VAT)
SUPPLIER e740, Savastore.com; e740 Bluetooth and e740 WiFi, Expansys 0161 868 0868
VERDICT A stylish, well-designed and comprehensively featured PDA, but it's too expensive next to the competition.

Toshiba is a relative newcomer to the PDA business, but the company has a clear idea of who it's targeting. Its sleek, brushed-metal handhelds are more understated than Compaq's iPAQs, but still give off an air of corporate desirability. The e740 is Toshiba's top-of-the-range model, and it's a veritable Rolls-Royce of organisers. There are three flavours – Bluetooth, 802.11b and plain 'vanilla'. It's currently the only PDA to offer 802.11b integrated as standard. Other than the choice of built-in wireless technology, the three are identical, with the same robust and dependable chassis.

The e740 is a quick PDA too. With the 400MHz XScale CPU, it's very responsive and achieved one of the shortest times to display our test JPEG. It's also got a full complement of expansion ports, with both SD and Type II CompactFlash sockets. Despite the double slots it's still quite svelte and weighs in at around 181g, somewhere in between the Pocket LOOX and iPAQ. Opt for one of the wireless radio models and you'll be able to add the other wireless standard on CompactFlash or SD and still have a slot free for a memory upgrade.

The e740 adds further potential with the novel Toshiba Expansion pack. This sports a VGA and a USB port and works in tandem with the e740's on-board ATi Imageon graphics processor to turn the PDA into a portable presentation tool. Simply hook the Expansion pack up to a projector, load your PowerPoint presentation into the IA Presenter application on the handheld and run the presentation at user-definable resolutions up to 800 x 600.

The USB port can drive a standard USB PC keyboard, but not a mouse (at present) due to the absence of a pointer in the Pocket PC OS. In theory, you could even hook up a monitor and keyboard and pretend the e740 was a real PC. At £20, the Expansion pack is a bargain, which makes you wonder why Toshiba didn't bundle it as standard.

One option you don't have at present, unfortunately, is a standalone foldable keyboard. The Toshiba Expansion pack's USB keyboard capability is some compensation, but this isn't as elegant a solution as the keyboards you can buy for an iPAQ or Pocket LOOX (*see Keys to success, p98*). Our other niggle was that on one of the e740s we had on test the battery lock mechanism was loose and was easily knocked into the open position, preventing the PDA from turning on. We suspect this was due to unusual wear and tear as a review unit, however.
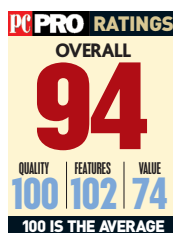
The e740's screen isn't as easy to read as the iPAQ's, but it's clear and bright, making it one of the best on test. The Imageon chip also accelerates MPEG-4 video playback, and we found the Toshiba could play 320 x 240 Windows Media files almost frame accurately from an IBM Microdrive, making this a viable candidate to be a pocket VCR.
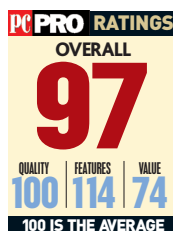
As with all the Pocket PCs on test, battery life is a major bugbear, particularly running the Microdrive. With its regular battery, the e740 lasted scarcely two hours under continuous use. There's a long-life battery, which extends this to around eight hours, but it adds a lot of bulk and weight. The docking cradle has been designed to accommodate this larger battery, but the leather carrying case hasn't, which leaves you without screen protection for your PDA.

Overall, this is a well thought-out and feature-rich PDA. What really lets the e740 down, however, is the high price. At £465, the Bluetooth version is the most expensive unit on test, although the WiFi version looks more attractive at £429 – only from Expansys, though, and numbers are limited. Although the e740's features are comprehensive, and some of them unique, unless you need its Expansion pack and are in love with the styling, Fujitsu Siemens' Pocket LOOX offers a similar feature set for considerably less. The e740 may be the Rolls-Royce of PDAs, but you pay for the quality.
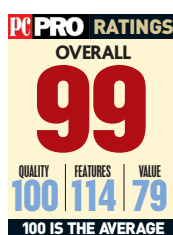
e740
PC PRO RATINGS
OVERALL
94
QUALITY **100** | FEATURES **102** | VALUE **74**
100 IS THE AVERAGE

e740 Bluetooth
PC PRO RATINGS
OVERALL
97
QUALITY **100** | FEATURES **114** | VALUE **74**
100 IS THE AVERAGE

e740 WiFi
PC PRO RATINGS
OVERALL
99
QUALITY **100** | FEATURES **114** | VALUE **79**
100 IS THE AVERAGE

Handspring Treo 180

PRICE £340 (£400 inc VAT) without contract
SUPPLIER Handspring www.handspring.co.uk
VERDICT Practical and usable, but too expensive considering its functionality and the competition.

An early knight in the quest for the Holy Grail of a PDA/phone that's functional and portable, the monochrome Treo 180 is beginning to look a touch medieval, especially when placed next to the shining armour of the O₂ xda.
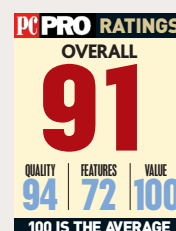
While style isn't the most important factor in a buying decision, few users will be happy with the beam-me-up-Scotty flap that must be open when using the phone (unless you opt for the hands-free solution).

However, Handspring's history lies in PDAs and, as you'd expect, the unit is utterly portable – fitting easily into a trouser pocket and weighing only 148g – and feels robust enough to handle the rigours of daily use.

Operating as a PDA, the 33MHz DragonBall processor running Palm OS 3.5.2H is sufficient for most needs, and more than enough for the basic PIM programs to run smoothly. There's no docking cradle, but synching was simple via the supplied USB cable. Battery life was reasonable, but Palm users will find the phone function drains the battery faster than they expect.

When it came to accessing the Web, the Treo was surprisingly quick considering the maximum 9,600Kb/sec rate, and there's now a software upgrade to GPRS available. However, the bundled software was a disappointment. When Handspring is gracious enough to supply such a responsive thumb keyboard, it seems wasteful not to include a word processor and spreadsheet to take advantage.

We can't recommend the Treo 180. Its main drawback is the lacklustre screen with poor backlighting, but niggles like not displaying the time without using three keystrokes only added to our frustration.

PDA/PHONE

PC PRO RATINGS
OVERALL
91
QUALITY **94** | FEATURES **72** | VALUE **100**
100 IS THE AVERAGE

Handspring Treo 270

PRICE £425 (£499 inc VAT) without contract
SUPPLIER Handspring www.handspring.co.uk
VERDICT The Treo 270 isn't as powerful as the Nokia 9210i or Pocket PC PDA phones, but it does the job.

Although the PDA/phone has been with us for at least five years, the idea has only taken off in the last 12 months with the arrival of GPRS. Previously known for chunky but effective PDAs, Handspring has leapt into the wireless arena with the Treo, and the colour 270 leads the way.

It's a clamshell PDA with a mini-keyboard, much like the Treo 90. Opening up the cover automatically brings up the phone speed-dial buttons; pressing the Phone app button launches a numerical keypad. Even though there's a keyboard, the screen is touch-sensitive, and you can use a finger to dial numbers without having to pull out the stylus. It's quite an intuitive process. You can use the Treo with the supplied hands-free kit or as a flip-up phone.

A downloadable firmware update upgrades the Treo to GPRS. However, it only supports Class 2/Class B, offering two download slots and one upload with our Orange test SIM, or around 27Kb/sec downstream and 13Kb/sec upstream. This is considerably slower than the Class 8 of the O₂ xda and HP WDA. Blazer, the supplied web browser, is also fairly limited compared with the 9210i's Opera and IE on the Pocket PC-based PDA/phones. The bundled One-Touch program, however, is a capable POP3 mail client and integrates well with the Contacts app.

As a PDA, the Treo is essentially the same as any Palm OS device. Despite the added phone functionality, battery life was still good at around a week. However, although the screen is generally bright and readable, it's small and has a comparatively low 160 x 160 resolution. Graffiti fans will find the keyboard frustrating too, but the keyboard makes it easy for newcomers to write the occasional email. Overall, the 270 is a functional PDA/phone, but it loses out on features and flexibility.

PDA/PHONE

PC PRO RATINGS
OVERALL
95
QUALITY **97** | FEATURES **94** | VALUE **97**
100 IS THE AVERAGE

HP Jornada 928 WDA

PRICE £332 (£390 inc VAT) with Vodafone contract
SUPPLIER Vodafone www.vodafone.co.uk
VERDICT Expansion potential makes this device very versatile, but its build quality and value can't match that of the xda.
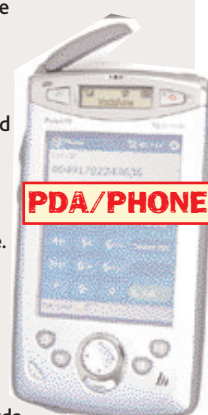
Whereas O₂ started from scratch when designing the xda, HP's Jornada legacy is obvious in the 928 WDA. All the input buttons common to Pocket PC devices are here, while a Type I CompactFlash and SD/MMC slot provide expansion potential, and a separate mobile phone unit complete with its own LCD sits at the top of the device.

PDA/PHONE

A sturdy plastic lid protects the main screen when closed, but the rest of the WDA remains vulnerable. Unlike the xda, the aerial is retractable and even removable, improving its portability but also your chances of losing it. The WDA's battery life was also marginally better than O₂'s device, albeit just two hours under heavy use. But we appreciate the removable battery.

The WDA's extra input buttons over the xda give it a slight speed advantage when entering data, and note the ingenious slot-on keyboard (*see p98*). The relatively slow processor wasn't too evident in general use either, and HP handily groups commonly used apps in its Home menu.

Out of the box, the WDA is set up for use on the Vodafone network to which it's currently exclusive, but use outside the UK will leave you entering settings by hand, as there's no auto-configuration tool.

Synchronising proved frustrating at times, with the WDA not fitting into its cradle snugly enough. The xda also offers better screen quality than the WDA, which was particularly noticeable in brightly lit conditions. Although the WDA is the most versatile mobile comms device here, little niggles like this let it down.

PC PRO RATINGS
OVERALL
103
QUALITY **97** | FEATURES **123** | VALUE **97**
100 IS THE AVERAGE

Nokia 9210i Communicator

PRICE £482 (£567 inc VAT) without contract
SUPPLIER Expansys 0161 868 0868
VERDICT Rugged and flexible, the 9210i is a powerful tool for the mobile professional, although it's lacking in style.

Never judge a book by its cover, they say, and nowhere does this apply better than to the Nokia 9210i Communicator. It may look like an anodised brick, but it's robust and crammed with essential features, making it a powerful professional tool.

If looks are a weakness, then so is portability. Despite a range of holsters, the 9210i's size is offputting. However, keeping your data up to date while on the move is no problem thanks to the simple serial synchronisation cable and Nokia's PC Suite software. You can also buy a docking cradle for £41, which includes a battery recharger. Running out of juice isn't something you'll need to worry too much about, though, as the 9210i seems almost inexhaustible.

The miniature QWERTY keyboard is well laid out and responsive, with useful shortcut buttons to the various application sections placed on the top row. However, unlike the other PDAs tested, the 9210i's colour display isn't a touchscreen. Instead, a simple thumbpad is used to move the mouse cursor, which actually works well. The screen itself is also good and mostly easy to read.

Thanks to the keyboard, the 9210i's range of apps are very usable. This includes a word processor and

PDA/PHONE

spreadsheet plus the superb SMS and email program, with the latter making use of the GSM modem, which supports HSCSD. There's no GPRS, though. But you can still send and receive attachments and browse the Web, with Java, HTML 4.01 and frames all supported. You also get the usual PIM apps, such as contacts and calendar, although the 9210i was quite sluggish searching though them.

Compared to the xda, the 9210i looks incredibly dated, but scratch beneath the surface and it's a superbly designed piece of equipment. Even without GPRS, it's a force to be reckoned with.

PC PRO RATINGS
OVERALL
104
QUALITY **106** | FEATURES **98** | VALUE **105**
100 IS THE AVERAGE

O₂ xda

PRICE £340 (£400 inc VAT) with O₂ contract

SUPPLIER O₂ www.o2.co.uk

VERDICT A striking design, superb integration of mobile comms functions and easy setup make this device highly desirable.

O₂'s minimalist approach to the design of its xda combined with a striking metallic chassis makes this one of the most alluring devices here. The clear, bright screen only adds to its charms. In addition, the few vulnerable moving parts contribute to a reassuringly solid build, and there's even expansion via the SD slot.

Screen protection comes courtesy of the supplied thick leather sleeve. However, add this bulk to the already weighty xda and it's clear that a jacket rather than trouser pocket is required. With a disappointing battery life of well under two hours, you'll also need to carry the charger (plus supplied adaptor) with you if you're away from base for more than a couple of nights.

With the bare minimum of input buttons, the xda relies heavily on its stylus-driven interface, which is one area where it loses out to HP. But O₂ successfully takes the sting out of setting up your GSM/GPRS Internet and phone connections with its one-click Auto Configuration tool for all O₂-partnered countries.

The xda also comes with the superb Action Update tool. This works similarly to Windows Update, offering fixes, new software and driver updates over your GSM/GPRS Internet connection. Finally, use of the phone connection within apps such as Pocket Outlook is nicely integrated, with placing calls and emailing just a right-click away.

Aside from its good looks and rugged design, the xda's main draw is its ease of use. If data input isn't your main focus and you mainly want to pull in information from a variety of sources, including email, attachments, the Internet and even your company LAN via a VPN connection, you won't be disappointed.

PC PRO RECOMMENDED PDA/PHONE

PC PRO A LIST

PC PRO RATINGS
OVERALL
106
QUALITY **107** | FEATURES **112** | VALUE **101**
100 IS THE AVERAGE

The smart alternative
Is this new breed of mobile phone/PDA a winning combination?

Most current PDAs feature an Internet browser and an email client, so the next logical step is to add telephone capabilities. You could just plug in a Bluetooth transceiver for wirelessly connecting to your mobile phone, or you could eschew the phone completely in favour of a GSM/GPRS card. But both these options consist of hit-and-miss setup procedures not for the faint-hearted, while also consuming your PDA's limited expansion slots.

Compared with these scenarios, a combined PDA/mobile phone device is simpler to use (with less items to carry) and could also prove better value for money. We review five PDA/mobile phones here that promise exactly this, but you may also want to consider a mobile phone with integrated PDA features – more commonly known as a smartphone.

Both Nokia's 7650 (*see Reviews, issue 96, p128*) and Sony Ericsson's P800 (*see Reviews, issue 97, p143*) smartphones run Symbian OS 7. Reports suggest that almost 80 per cent of smartphones released in the next 12 months will ship with this OS, and it's easy to see why. Designed by a consortium of mobile phone and PDA manufacturers, Symbian is a rich, mobile-focused operating system squeezed into a tiny footprint, and it requires little processing power too.

Symbian's Psion history ensures that when synchronising data with PCs, there's compatibility with all major PIMs. The Opera browser engine is equivalent in most respects to the version of Internet Explorer featured in all Pocket PC 2002 devices, including support for major image formats. Java/C++-developed apps bring support for video playback as well as other multimedia possibilities. You can even view common desktop

The Sony Ericsson P800 showcases Symbian OS 7 to great effect.

documents. In fact, a thorough read through the Symbian OS 7 white paper (www.symbian.com) provides a reassuring comparison to all features available with a standard PDA, but with the added bonus of seamless mobile telephony integration where appropriate.

Both the 7650 and the P800 provide compelling evidence of such power in action. The intuitive colour GUIs are swiftly driven using an excellent mini-joystick with the 7650, or a touchscreen in the case of the P800. Receiving, viewing and then forwarding on attachments proves exceptionally easy. And the P800 played a small MPEG-4 video clip perfectly well. The efficiency of the OS is evident in battery lives approaching four hours of constant use, which is quite acceptable for a PDA.

Depending on what you're after in a mobile comms device, either the 7650 or the P800 could well serve your needs. That said, there are no hardware expansion options for the 7650, and the P800 is stuck with Sony's proprietary Memory Stick Duo format. With Symbian OS 7's support for USB 1.1, it's likely something more future-proof lurks around the corner.

HTC/Orange has just released the SPV, adding another twist to the smartphone tail. This is a much closer relation to the Pocket PC devices on test, using a specialist version of the Pocket PC 2002 OS (which Microsoft is simply calling Smartphone). It strips out apps like Pocket Word and Excel, but leaves the all-important Pocket Outlook and Pocket Explorer in place. See our full review on p147.

But we don't think that the phone/PDA is under threat just yet. Its greater flexibility and the backup of more established operating systems, with their legacy of apps, makes them far more attractive to the traditional PDA buyer.

IAN ROBSON