Handy hardware

Notebooks now incorporate pretty much everything a desktop PC has to offer, so manufacturers have turned their attention to fitting functionality into even tinier devices. Harry Sabbers tells you what to expect from today's handhelds and how to boost their power with a host of useful add-ons

One day you had a bright idea: you'd invest in a PDA (personal digital assistant) to help organise your hectic life. We'd wager that, having first been overwhelmed by the huge variety of makes and models on sale, you were soon confounded by the enormous amount of software, memory and hardware upgrades thrust in your general direction.

Pocket computers are just as versatile as desktop PCs and most are expandable to the nth degree. Manufacturers long ago realised the commercial drawbacks of the one-model-suits-all approach to PDA marketing and so focused on increasing customer choice, resulting in the massive selection of products on sale today.

Decisions, decisions

Such choice can be confusing: should you plump for a cheap-and-cheerful electronic diary or would you be better served by a state-of-the-art, PC-aping device costing £500 or more? You might fancy a colour display, but do you really need one? If some models can operate comfortably with 16MB of memory or less, why do others boast 32MB and above? Are the cut-down versions of Office applications supplied with Pocket PC-based PDAs a pointless extravagance, and would you be better off starting small and buying only what you need, when you need it?

We're going to examine all aspects of personal digital computing, from the machines and their software to the fancy hardware add-ons and extras. We'll discuss the relative merits of the competing designs and operating systems and draw some value and usability comparisons. To top it all off, we've included an in-depth features table detailing some popular current models. Read on and get your life organised.

PDA players

As far as we know there isn't a clear-cut definition for the diverse set of devices collectively termed personal digital assistants, but if there's a trait exhibited by them all it's a high level of individuality.

Some have keyboards; many don't. A few sport tiny screens while some go for expansive, notebook computer-style displays. Most will fit in a trouser or jacket pocket but others require a shoulder bag for comfortable transportation. There are even some designed to sit snugly in the credit card pouch of a wallet or purse or doubling up as mobile phones.

However, while dozens of different manufacturers are busily producing hundreds of different mobile models, the PDA market is distilling down to a few distinct sectors. In fact, expressed in the broadest possible terms there are just two categories: small ones and not-so-small ones. The former group is dominated by devices running either the Palm operating system or the Windows alternative from Microsoft, Pocket PC, while the latter is populated by devices based on Symbian or cut-down versions of the Windows operating system.

Small print in the Palm farm

Some big-name companies, notably Sony, are hoping to follow the lead of industry trailblazer Palm and enjoy big success with pocket-sized PDAs that sport the Palm OS. This is possible because Palm now licenses its operating system brand to any company willing to pay for it, putting Palm in the unconventional commercial situation of competing with many of its key customers.

An outfit like Sony is prepared to go head-to-head with the supplier of its operating system software because it feels it can serve up a more appealing PDA dish to style-conscious consumers.

While Palm's focus seems to be on producing as wide a range of devices as possible, Sony highlights the multimedia credentials of its small collection of Palm OS-powered Clie organisers. For example, thanks to some Sony-specific software, the Clie PEG-N770C is able to play MP3 audio files and movie clips on its high-colour (65,000 shades) screen.

However, with just 8MB memory as standard, these are white-elephant features unless you upgrade your RAM. And, since a 64MB Memory Stick (Sony's proprietary memory card system) will set you back upwards of £60, the lesson here is to read between the lines of the marketing spiel.

Similarly, beefing up the storage of Palm's latest flagship product, the colour-screened m515 handheld (reviewed in our June issue) could be a costly and no less necessary business. Granted, the m515's 16MB standard-issue memory complement seems massive compared to earlier Palm incarnations but, in the face of anything more demanding than the machine's core functionality (contact management, note-taking and personal agenda tracking), it appears rather feeble. This is not so much a criticism of the m515 as a note of caution: the m515 has some fancy tricks up its sleeve but, again, the better ones will demand more memory.

At least in this case the manufacturer is more upfront than rival/client Sony: Palm's m515 marketing materials make little secret of the fact that the machine needs updating in order to cope with more complicated tasks such as video playback.

Wee Willy's Windows

The other major pocket organiser platform is Pocket PC. This may sound like a handheld device in itself but it's actually an operating system. In fact, it is Microsoft's third attempt to put its ubiquitous Windows OS into the hands of the world's millions of PDA devotees and, this time, it is making serious headway.

According to research group Gartner Dataquest, from a negligible share of the market in early 2000, Pocket PC sales accounted for around 18 of all PDA sales by the end of 2001 and are climbing.

Microsoft doesn't make PDAs. The Seattle software giant's business model for Pocket PC is much the same as for its desktop equivalent: sell the operating system at a low cost to allcomers. In that manner, Microsoft hopes to build a Pocket PC user groundswell to which it will be able to sell many more Microsoft-produced Pocket PC software products.

Right now, though, choosing the perfect Pocket PC-based PDA is no easier than choosing a Palm OS-powered alternative. The number of manufacturers vying for the Pocket PC pound is approaching double figures and between them they've created close to 20 competing models.

Compaq is the current market leader, its iPaq machine outselling the competition in some instances by 10 to one. There's good reason for this. Costly though it is, the £449 iPaq H3850 (reviewed in our March issue) has a speedy 206MHz StrongARM processor combined with 64MB memory and a sleek design.

Palm wars

However, in the fast-moving world of technology nothing stays put for long and new Pocket PC models from HP and Toshiba are winning plaudits aplenty from PDA pundits. The HP Jornada 568 (reviewed in January) boasts many of the same features as the market leader but contains them in a smaller, lighter package. We originally criticised the Jornada because of its high price but this has now been reduced. For future improvements, the Jornada 568 sports a Type I CompactFlash slot. If nothing else, this paves the way for comparatively cheap memory upgrades (a 64MB CompactFlash can be picked up currently for £25.30).

The iPaq H3850 is more flexible when it comes to upgrades. The machine includes a SD (Secure Digital) media slot for upping memory and it can also don optional 'jackets' that allow the unit to accept either CompactFlash or PC Card memory upgrades or devices.

Perhaps, though, it's Toshiba that has the most to chirp about in the expansion department. The company's e570 Pocket PC has both SD media and CompactFlash slots built in. Moreover, the CompactFlash socket is the latest Type II standard and can accommodate all manner of nifty hardware add-ons such as IBM's miniscule Microdrive 1GB hard disk (see the mini reviews below).

Software symbiosis

If Palm or Pocket PC devices don't tickle your fancy, there are alternatives. In past times, Psion is the name that would have sprung immediately to mind, but that company's recent and unglamorous exit from the consumer PDA market was well documented by both specialist and mainstream press. Less well publicised was the fact that Psion's revered operating system would live on, revamped and rebranded as Symbian OS.

This refreshed front end now forms the backbone of many mobile handset companies' 'smartphone' strategies.

Extra, extra: put power in the Palm of your hand

iPaq card expansion jackets

Compaq's iPaq PDA (personal digital assistant) is a lovely looker but for advanced functionality it needs to don an expansion jacket. These slide on quickly and easily and instantly improve the machine in various ways. The CF expansion jacket, for example, enables an iPaq to accept all manner of CompactFlash devices.
Compaq: 0845 270 4222; www.compaq.co.uk; from £31

IBM Microdrive

Incredible is a word that's often misused in IT journalism but it's certainly an appropriate description for this little wonder. IBM has somehow shrunk a hard disk drive to fit on to a Type II CompactFlash card, barely bigger than a 50p piece. Tiny it might be, but the Microdrive's 1GB capacity is roomy indeed. Perhaps perfect way to expand a Pocket PC.
IBM: 0800 169 1458; www.ibm.com/uk; £301

Navman GPS

Navman is a GPS (global positioning system) receiver designed to work with various Palm handhelds and H3000 series Compaq iPaq devices. Setup is not quite slot-in-and-go as software must be installed and required maps selected, but this is quickly worked through. Once up and running, the device takes a few moments to acquire its position from the GPS satellite network that orbits Earth before plotting the data on an appropriate map. That done, you have a pinpoint-precise global positioning device in your pocket.
Navman: 01293 449 882; www.navman-mobile.com; £170-£213

Palm Bluetooth card

Palm owners wising up to the world of wireless communications will want to get hold of this product. Slot the postage-stamp-sized Bluetooth card into the rear of a Palm PDA and it will cordlessly convey all types of computer data to other Bluetooth-equipped gadgets and gizmos.
Palm: 0118 927 8700; www.palmdirect.com; £112

Palm portable keyboard

This ingeniously designed tapper (pictured above) is available for many of Palm's recent machines. We won't bore you with details of what it does – it's a keyboard, so figure it out yourself – but the way the gadget is stowed is worth describing: a concertina-style construction means the portable keyboard can fold away to pocket-sized proportions.
Palm: 0118 927 8700; www.palmdirect.com; £83

Features comparison

They might be tiny gadgets, but the PDA (personal digital assistant) market is a sprawling affair, with hundreds of models available. We've put together a concise guide of the best of the bunch to help you take your first steps into the handheld world.

Details	Contact	Website	Price (ex VAT)	Processor	RAM	Operating system	Warranty	Dimensions (width x depth x height)	Weight	Screen size (pixels)	Expansion slot(s)	Internal modem	Battery type	PC connection
Compaq iPaq H3850	0845 270 4000	www.compaq.co.uk	£449	206MHz/StrongARM	64MB	Pocket PC 2002	1-year	84x133x16mm	190g	240x320 colour	Secure Digital	Y	lithium-polymer	USB
Handspring Treo 180	020 7309 0134	www.handspring.co.uk	£425	33MHz/DragonBall VZ	16MB	Palm OS 3.5	2-year	110x69x18mm	147g	160x160 mono	none	Y	lithium-ion	USB
Handspring Visor Pro	020 7309 0134	www.handspring.co.uk	£229	33MHz/DragonBall VZ	16MB	Palm OS 3.5.2H3	2-year	76x112x18mm	161g	160x160 mono	Springboard (proprietary)	N	lithium-ion	USB
HP Jornada 568	0990 474 747	www.hp.co.uk	£382	206MHz/StrongARM	64MB	Pocket PC 2002	1-year	77x132x17mm	173g	240x320 colour	CompactFlash Type I	N	lithium-polymer	USB
Nokia Communicator 9210	0870 055 5777	www.nokia.co.uk	£500	ARM9	2MB +16MB*	Symbian/EPOC	1-year	56x158x27mm	244g	640x200 colour	Proprietary	Y	lithium-ion	Serial
Palm m515	020 7365 9820	www.palm.com/europe	£315	33MHz/DragonBall VZ	16MB	Palm OS 4.1	1-year	79x114x13mm	139g	160x160 colour	Multimedia Card and Secure Digital	N	lithium-polymer	USB
Pogo	0808 100 9250	www.pogo-tech.com	£281 (inc airtime contract)	75MHz/ARM	16MB	Proprietary	1-year	150x20x150mm	240g	320x240 colour	none	Y	lithium-ion	none
Psion Revo Plus	0870 101 0500	www.psion.com	£162	36MHz/ARM710T	16MB	Symbian/EPOC	1-year	157x79x18mm	200g	480x160 monochrome	none	N	NiMH	Serial
Psion Series 5mx	0870 101 0500	www.psion.com	£230	36MHz/ARM710T	16MB	Symbian/EPOC	1-year	170x90x23mm	354g	640x240 monochrome	CompactFlash Type I	N	2xAA	Serial
Psion Series 7	0870 101 0500	www.psion.com	£511	133MHz/StrongARM	16MB	Symbian/EPOC	1-year	235x182x37mm	1150g	640x480 colour	CompactFlash Type I and PC Card	N	lithium-ion	Serial
Sony PEG-N770C	020 7365 2947	www.sony.co.uk	£292	33MHz/DragonBall VZ	8MB	Palm OS 4.1	1-year	71x119x17mm	160g	320x320 colour	Memory Stick	N	lithium-polymer	USB
Toshiba Pocket PC e570	01932 828 828	www.toshiba.co.uk	£399	206MHz/StrongARM	64MB	Pocket PC 2002	2-year	76x124x18mm	180g	240x320 colour	SD Media and CompactFlash (Type I and II)	N	lithium-polymer	USB

*on 'application card'

Nokia, for example, uses Symbian to mesh together phone and organiser facilities in one chunky but eminently pocketable unit – the Communicator 9210.

The Communicator is often labelled a 'convergence' device because it brings together PDA functionality and mobile telephony. But Nokia is far from alone in this arena. Handspring, a company better known for its highly expandable range of Palm OS PDAs, has recently introduced the Treo – a Palm-powered mobile phone. Elsewhere, a tiny company called Pogo Tech is having a stab with its eponymously named Pogo (reviewed in May). A hand-sized techno-brick, the £281 Pogo is pitched as a portable web-surfing console first and a mobile phone second.

It would be ungracious to introduce Psion and move on without mentioning the firm's line-up of PDAs. Yes, production of most models is due to be axed but they remain powerful machines and the huge number of existing Psion owners means support will be forthcoming in some small way or another for years to come. The £230 Series 5mx is perhaps the most interesting of the lot, with its fast operation, big screen and fantastic keyboard. The £162 Revo Plus offers much the same, only in shrunken form.

More demanding users might look to the Series 7, which resembles a mini-notebook computer. A colour screen and large keyboard are the £511 machine's stand-out features, making it attractive to anyone needing to do lots of writing or data entry. Psion itself has committed to offering support for all these machines until at least December 2004.

Try before you buy

As we said at the start of this feature, one of the most appealing things about PDAs is their total flexibility: hardware upgrades and expansion slot additions let you customise your portable companion as you wish, while software can also be used to tailor your digital assistant in whatever way you choose. Specialist PDA sites such as Widget (www.widget.co.uk) and Pocket Gear (www.pocketgear.com) feature masses of appealing software, much of which you can try before you buy.

There's also a host of downloadable freeware and trialware (ranging from language translators and currency converters to instant messengers, email synchronisers and stock market trackers to the all-important golf score keepers) in our Download Directory.

Once you've logged in at www.pcadvisor.co.uk, choose your PDA operating system in the Handhelds section. We've included a selection of programs designed for Palm OS users on our cover CD this month.

Get yourself connected

Of course, deciding on and buying a PDA is usually just the first step for most people. As you set about personalising your new digital assistant, it's likely you'll want to connect it to a desktop PC to synchronise contacts and schedule information between the two machines. Almost without exception these days, this kind of information transfer is child's play. Both Palm OS and Pocket PC include comprehensive synchronisation systems – respectively, HotSync and ActiveSync – that ensure all kinds of data will stay in tune between desktop and palmtop.

Nor is synchronisation limited to the exchange of simple contact and schedule data: today's PDAs allow users to carry with them emails, office software files (like Word documents and Excel spreadsheets) and even condensed versions of favourite websites. In this respect, at least, Pocket PC has a couple of advantages over the competition.

Firstly, it has a familiar look and feel: the Windows-style front end will make any desktop PC user feel instantly at home. Secondly, Pocket PC 2002 has the technical nous to enable the modification of Microsoft Office documents in their native file formats. Palm OS-backed devices can be made to operate in similar ways but to do so requires the installation of third-party software which, frankly, is a bit of a faff.

Right now, all these link-ups require either a serial cable connection or (more commonly) a USB socket. Looking ahead a little, the future promises wireless connections, via technologies such as Bluetooth and 802.11.

The future's been promising this for past couple of years but, at last, tomorrow seems to have come. Palm is now selling the £112 Palm Bluetooth Card, which will slide into the expansion slot of any m-series Palm PDA and bestow upon the device wireless connectivity. It will let you collect emails by making a cordless connection via your mobile or wirelessly synchronise data with a Bluetooth-equipped PC. Bluetooth upgrades are also available for Pocket PCs, though the variety of makes, models and expansion slot standards does complicate the purchase process.

Pepping up a PDA

There's no shortage of choice of devices to slide into PDA expansion slots. Whether you want a simple modem add-on to enable internet activities or fancy the guidance of an advanced satellite navigation gizmo, chances are, there'll be something to sate your desire. A quick rundown of PDA peripherals can be found on page 166. ∎