

# the *mobile* professional

## Palm or Pocket PC?

BY DUANE M. BRANDON,  
JOHN BRIGGS, AND  
JENNIFER M. MUELLER

*At* the airport, at meetings, on the street, you are likely to see folks tapping on the screens of their handheld PDAs (personal digital assistants). They're jotting down directions or fleeting thoughts, or they're looking up phone numbers, appointment times, or information from spreadsheets or documents. If you don't have such a device, maybe you've wondered whether it would be worth the effort to learn how to use one (or worth the cost to buy one). If you have one, maybe you've thought about upgrading. While PDAs are common in the business world, few have realized their full potential. They still meet their original objectives—to keep daily tasks and contacts organized—but now they're capable of performing as palm-sized mobile offices. We will look at what's available in palm-sized computing by comparing the two major operating systems—Palm and Pocket PC.



The Pocket PC operating system on the hp iPAQ h1935 (opposite page, top), and the Palm operating system on the Tungsten T (opposite page, bottom). The Sony Clié (above) is a Palm format PDA plus camera and MP3 player.

## THE TWO MAJOR OPERATING SYSTEMS

There are currently two major types of handheld computers—those with the Palm OS operating system and those that run the Pocket PC operating system. Palm OS manufacturers include Palm, Handspring, and Sony, while manufacturers such as Casio, Dell, HPCompaq, Toshiba, T-Mobile, and Siemens make Pocket PCs (see table below). While both types are widely used, Palm machines were the first to market and own the majority of the market share (57% to Pocket PC's 20%—IDC report in 2002). What distinguishes the two? Which type is right for you? Generally speaking, Pocket PCs offer more power and more functionality at greater cost. Users of Palm machines praise their lightweight, sleek design, simplicity, and long battery life (nonrechargeables last up

to several months). Lately, however, the gap in similarities seems to be closing as newer Palm models are more powerful, and new Pocket PC models are more compact. Pocket PC users like the familiarity of their Windows-based environment, the ease with which they can work with Microsoft applications, and their standard high-end graphical and audio capabilities. Once you decide which operating system is right for you, there are plenty of models to choose from. You can typically expect to pay between \$100 and \$600, depending on what you require, so it's useful to know what you're looking for.

## SYNCHRONIZATION

One of the most compelling reasons to own a handheld is that it's a mobile extension of a desktop or laptop com-

### SELECTED CURRENT MODELS

PALM OS HANDHELDS		COST	RAM	PROCESSOR	EXPANSION*	OTHER **
Palm	Tungsten C	\$499	64MB	400mHz	1	
Palm	Tungsten W (phone)	\$419	16MB	33mHz	1	
Palm	Tungsten T2	\$399	16MB	144mHz	1	V
Palm	Tungsten T	\$349	16MB	144mHz	1	V
Palm	m515	\$249	16MB	33mHz	1	
Palm	m130	\$179	8MB	33mHz	1	
Palm	Zire 71	\$299	16MB	144mHz	1	C
Palm	Zire	\$ 99	2MB	16mHz	1	basic
Sony	CLIE UX50	\$699	newly released			larger size, C V
Sony	CLIE TG50	\$349	16MB	200mHz	1	V
Sony	CLIE NZ90	\$799	16MB	200mHz	2	C V
Sony	CLIE NX80V	\$599	32MB	200mHz	2	C V
Sony	CLIE PEG-SJ33	\$219	16MB	66mHz	1	
Handspring	Treo 90	\$299	16MB	33mHz	1	
Handspring	Treo 270 (phone)	\$249	16MB	33mHz		
Handspring	Treo 300 (phone)	\$399	16MB	33mHz		
Kyocera	7135 (phone)	\$599	16MB	33mHz	1	
Samsung	SPH-I300 (phone)	\$499	8MB	33mHz		
POCKET PC HANDHELDS		COST	RAM	PROCESSOR	EXPANSION *	OTHER **
Hewlett-Packard	iPAQ H5555	\$649	128MB	400mHz	1	V
Hewlett-Packard	iPAQ H2215	\$399	64MB	400mHz	2	V
Hewlett-Packard	iPAQ H5455	\$599	64MB	400mHz	1	V
Hewlett-Packard	iPAQ H1935	\$199	64MB	200mHz	1	
Hewlett-Packard	iPAQ H1945	\$299	64MB	266mHz	1	
Casio	E-200	\$599	64MB	206mHz	2	V
Casio	BE-300	\$199	16MB	166mHz	1	basic
Dell	Axim X5 (400 mhz)	\$299	64MB	400mHz	2	V
Dell	Axim X5 (300 mhz)	\$199	32MB	300mHz	2	V
Toshiba	e750	\$449	64MB	400mHz	2	V
Toshiba	e350	\$299	64MB	300mHz	1	V
T-Mobile	Pocket PC Phone	\$399	32MB	206mHz	1	

\*Number of expansion slots (for CompactFlash, MemoryStick, and/or Secure Digital cards)

\*\* C=digital camera, V=voice recorder

Some models also include built-in wireless capabilities and/or MP3 capabilities. Prices are approximate as of 9/1/03.

puter. You connect with applications on a PC with synchronization, during which information is passed from the PC to the PDA and vice versa. The most common method of synching is with a cradle plugged into a serial or USB port. Both operating systems allow for synchronization of anything from e-mail and other personal information management (PIM) information to files such as graphics, documents, and software applications. Synching also provides a backup on the desktop in the event the PDA loses information or is lost itself.

An alternate form of synchronization for both Palm and Pocket PC is via infrared beaming. Beaming passes information between two PDAs (or a PDA and a printer, laptop, desktop, or cell phone) in a wireless fashion. You can beam contacts, appointments, files, spreadsheets, applications, and even entire e-books by lining up the infrared “eyes” of two devices so they “see” each other. Palm devices send to other Palm-enabled hardware (including printers equipped with infrared), and Pocket PCs communicate with other Windows PDAs, laptops, desktops, and printers with infrared ports.

## SOFTWARE

Software brings several important considerations to the table. First, let’s look at operating systems. The familiarity of the Windows environment on the Pocket PC means that, with few exceptions, interaction with the Pocket PC is identical to interaction with a Windows desktop, right down to the Start menu. While this leads to little or no learning curve for anyone already familiar with Windows, some who consider the desktop Windows environment to be complex or burdensome will have the same experience using the Pocket PC, only on a much smaller screen. In contrast, Palm has earned a reputation for ease-of-use with buttons rather than dropdown menus providing most access. For example, to beam your business card to another Pocket PC, you have to go through several levels of dropdown menus and choices. On the Palm, you just hold down a single button and point the device.

With respect to the types of software available for the Palm and Pocket PC systems, one thing is true of both—a wide variety of third-party software, some of it free, is available for accomplishing a multitude of tasks (see [www.pdastreet.com](http://www.pdastreet.com)). Palm, however, has far more developers writing for its platform with a recent estimate of 17,000 applications for its devices compared to about 5,000 for Pocket PC. Some familiar desktop software titles, such as Adobe Acrobat Reader and pocket versions of Quicken and Microsoft Money, are available for both.



The Palm Tungsten C with built-in thumb keyboard and wireless Internet.

There are few downsides to adding third-party software to either the Palm or the Pocket PC, but they are worth mentioning. The quality and performance of third-party software varies widely depending on the source/developer. Also, loading and running many additional applications may impair processing speed. An important consideration is which software applications are integrated (or standard) on the PDA.

The Pocket PC comes standard with mobile versions of several familiar applications from the Microsoft family including Internet Explorer, Outlook, Word, and Excel. The Palm defers to software not developed by Microsoft to facilitate use of Word documents, Excel spreadsheets, Outlook, and PowerPoint that may or may not come standard with the unit (for example, Dataviz’s Documents To Go). Typically, neither Pocket PC nor Palm has an integrated version of presentation or database software. Various third-party software solutions for creating, editing, and displaying the files exist for both Pocket PC and Palm. You would expect the integrated Office products to function better on the Windows platform, but you might be in for a surprise. Walter Mossberg was. In his review of how Palm and Pocket PC handle MS Office Documents (*The Wall Street Journal*, February 6, 2003), Mossberg wrote, “My surprising conclusion is that, in many respects, Documents To Go does better with Office documents than Microsoft’s own PDA programs.” This was especially true of Word documents—Palm displayed and saved formatting that was lost on the Pocket PC OS. It’s best to check how a device you’re considering handles your favorite programs.

If you want mobile connectivity with your PDA, be aware that connectivity such as Internet access and e-mail are available in two different realms. First is true connectivity, with the ability to retrieve and send e-mails and access the Internet directly from the PDA. Second is the ability to read and write e-mails and view Web content offline. Many Pocket PC and Palm devices allow true connectivity with separately purchased wireless accessories or when synched to the desktop PC. With regard to offline capabilities, however, note these commonalities and differences. Both the Palm and the Pocket PC allow offline viewing of Web content that is downloaded during synchronization with the desktop/laptop. Software that updates Web content downloaded to the

PDA from certain “channels” (sites) comes standard in the Pocket PC and most Palms. AvantGo is a popular channel that offers a wide variety of content ([www.avantgo.com](http://www.avantgo.com)). You can even customize your own channels, which means you can store versions of just about any site (corporate Web information, industry news) and update it whenever you like. Pocket PC’s mobile version of Internet Explorer also lets you view almost any type of downloaded Web content.

Both Pocket PC and most models of Palm let you read downloaded e-mails and create new ones. Thus, the PDA makes it easy to reply to downloaded e-mails while on the go or prepare messages ready to send when you synchronize with the desktop. You can even attach files including Word documents, Excel spreadsheets, and recorded voice messages or access attachments to received e-mails. Furthermore, the mobile version of Microsoft Outlook on the Pocket PC supports HTML e-mail messages and organization of e-mails into folders as in the desktop version.

## HARDWARE

If you’re planning on using your PDA as more than just an electronic organizer, there are some hardware specifications you need to consider, the most important of which are speed and memory. Pocket PCs are the faster of the two systems, but speed is only noticeable when you’re running more sophisticated applications. There’s no noticeable difference between the two when performing day-to-day organizer or calculator functions. As for memory, most Palm units come standard with 8MB or 16MB of memory. This is likely to be more than enough for storing most applications, but it somewhat limits the number and power of the applications you can store at one time. (For example, Word To Go v.4.003 takes up 221K, and Eric Drexler’s classic 320-page book on nanotechnology, *Engines of Creation*, fits in 395K.) Pocket PCs typically come with 32MB or 64MB of memory. While this is considerably more than that offered by Palm computers, Pocket PC programs tend to take up more memory on average, making direct comparisons difficult. As a remedy for this somewhat limited storage capacity, current Palm and Pocket PC models come equipped with memory expansion slots. Expansion is possible mainly via Compact Flash slots or some other method (Smart Media, MultiMediaCard, Memory Sticks). Compact Flash slots allow almost unlimited memory expansion using cards smaller than a matchbook and that weigh next to nothing. You can buy cards that store up to one gigabyte

## Other PDA Operating Systems

While Palm and Pocket PC are the most popular PDA operating systems, there are others available, and some are growing in popularity. Here are a few:

*Embedded Linux*—Based on the Open Source operating system Linux. Several PDA manufacturers are now offering models running this operating system (IBM and Sharp in their Zaurus SL5600, left). Also, PDAs running different operating systems may be modified and “loaded” with a PDA version of Linux.



*Windows Smartphone*—A somewhat slimmed down version of Pocket PC that will be embedded in combo PDA/mobile telephones (smartphones). Many of the standard features of Pocket PC will be pre-installed, including a Windows-style interface, Pocket Outlook, Pocket Internet Explorer, MSN Messenger, and Windows Media Player. The units will be expandable, much like the Pocket PC. Expect units to be available soon.

*Symbian OS*—An operating system for smartphones that takes mobile phones to a new level. Symbian OS Version 7 offers all the standard PDA organizer functions as well as Web browsing, multimedia, messaging, data synchronization, and other useful applications. Nokia, Sony, Motorola, and Samsung manufacture mobile phones equipped with this system.

of digital data. You could save about 2,500 books the size of Drexler’s in one gigabyte.

One of the most promising features of PDAs for the business environment is wireless connectivity. Currently, most units require add-ons that enable wireless network access or digital phone and data service. Imagine being able to access real-time inventory, customer, Web, and e-mail information from just about anywhere. Both Palm and Pocket PCs can be used in this manner. Some Palm and most Pocket PCs even accept hardware additions that enable them to become anything from a digital camera to a global positioning system (GPS). Hardware is even available that allows PowerPoint presentations to be given from both Palm and Pocket PC devices. One company, Margi ([www.margi.com](http://www.margi.com)), provides both the hardware and the software to make this possible.

Battery life is always an issue, especially if you travel. Most units are rechargeable, so you can avoid constantly

replacing batteries. On average, Palm units will function longer between charges than Pocket PCs. A color screen places greater demands on your battery, and you'll get less time if you're listening to MP3s than if you're reading e-mail.

Like battery life, physical size is a function of the operating system you choose. Palm handhelds are typically smaller and lighter than Pocket PCs, but newer Pocket PC models are closing the gap. The important thing to remember is that if you are interested in expanding the functionality of your PDA, it will often require hardware additions that can make a sleek PDA more bulky than one with the same functionality built in. For example, most hardware additions for Pocket PCs connect to the unit through Compact Flash expansion slots. If you choose a PDA without this expansion slot built in, the only alternative for expansion is often a "sleeve" that fits over the unit, increasing its bulk.

## INTERFACE: GETTING INFORMATION INTO AND OUT OF THE PDA

If you're ever tempted to throw your new PDA out the window, it's likely to happen over interface-related frustration. Interface is a high-priority consideration since the PDA is virtually useless if you are uncomfortable getting information into and out of the device. On the surface, it appears that the nature of interacting with the PDA is the same for the Palm and Pocket PC, given that the most common mode of input for either is to write and tap on the screen with a stylus. But there are differences.

The complaint heard most often from Palm users concerns Graffiti. This is a system of writing onscreen that asks you to relearn how to draw some letters and numbers in order for the system to recognize input. Pocket PC, on the other hand, allows for a more natural writing style with the integrated Transcriber software, and it also has a text completion tool called Rich Ink, which suggests up to four possible word choices once a few letters of a word have been entered. Tapping on the appropriate word choice eliminates the need to write the remainder of the word. A similar program can be downloaded for Palm.

Pocket PCs have another useful input feature that isn't available on Palm devices—the integrated voice recorder. At times when it's impossible to write on the screen (when running through the airport or driving), you can



The Handspring Treo 300 combines with Sprint for the next-level PDA—the communicator.

record an audible note to be played back later or attached to an e-mail. Or both Pocket PC and Palm accept add-on keyboards. Some models even have onboard thumb-operated keyboards. For all practical purposes, though, you'll need to get comfortable with entering information with the stylus to get your money's worth out of the PDA.

In the world of handheld computing, larger screen size means easier viewing but more encumbrance. You need to find the right balance between screen area and portability. Similarly, there's still a fair amount of variability in PDA screen resolution and clarity. This is simply a matter of individual preference and, of course, cost. Make sure you evaluate the "look" of various screens before committing to a certain model.

Choosing a color or monochrome screen is another important decision. Recent buyers lean toward color, although black-and-white screens are still available on several Palm models that are less expensive. Screen resolution, as measured in pixels, is generally higher on Pocket PCs. Palm manufacturers have responded to this deficit by offering color screens and better resolution on newer models. The tradeoff for color is that color screens drain the battery faster. You'll have to decide the higher priority: vibrant color or extended battery life.

## THE BOTTOM LINE

When choosing a handheld computer, it mostly comes down to how you want to use it. If you simply want an electronic version of a pen-and-paper organizer at a reasonable price, you may want to recognize the cost savings of a low-end Palm device. If you want to expand your mobile computing ability, you should probably go with a high-end Palm device or a Pocket PC. ■

*Duane M. Brandon is an assistant professor in the School of Accountancy at Auburn University, Auburn, Ala. You can reach him at [branddm@auburn.edu](mailto:branddm@auburn.edu).*

*John Briggs is an assistant professor at James Madison University. His e-mail address is [briggsjw@jmu.edu](mailto:briggsjw@jmu.edu).*

*Jennifer M. Mueller, Ph.D., is an assistant professor at Auburn University. You can reach her at [jmueller@business.auburn.edu](mailto:jmueller@business.auburn.edu).*