



**First Looks:
Windows CE
Devices Take
On Palm III**



**Project Management:
6 Programs
To Keep You
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**Managed
PCs: 38 Good
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Citizens**

**Net Tools:
Fast Ethernet
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**OpenGL:
High-End PC
Graphics**

WWW.PCMAG.COM THE INDEPENDENT GUIDE TO PERSONAL COMPUTING VOL. 17 NO. 12 JUNE 30, 1998

WINDOWS 98 WHAT YOU NEED TO KNOW!

- **Faster Performance**
- **Integrated Browser**
- **USB and DVD Support**
- **Slicker Interface**

The collage shows various Windows 98 interface elements: a Start menu with icons for Internet Explorer, My Computer, My Recent Places, and Runesoft; a Properties window for Drive C showing disk usage statistics; an Add New Hardware Wizard window; a Scheduled Tasks window with a list of tasks; and a taskbar with icons for News, AOL, and other applications.

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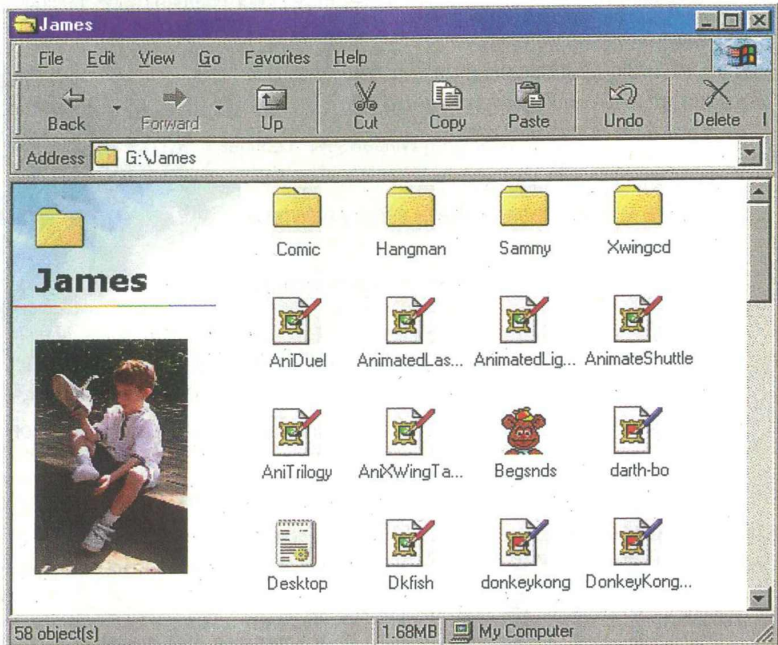
COVER PHOTOGRAPHY BY THOM O'CONNOR

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What You Need to Know About Windows 98

BY MICHAEL J. MILLER

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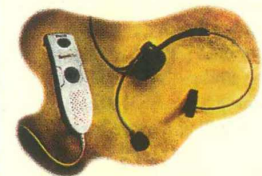
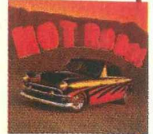
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First Looks



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NEW RECOGNITION:
VXI's Parrott and Philips' SpeechMike make voice recognition a whole lot easier. For the reviews, see page 64.

FLASH FLOPPY:
The Olympus FlashPath floppy disk adapter enables you to transfer digital images to your PC. See page 68.



Windows CE 2.0 Cornucopia

New hand-held and palm-size PCs up the personal digital assistant ante with broader choices for productivity, reference, and communications.

By Bruce Brown

The days of look-alike Windows CE devices are ending. By early summer, an increasingly diverse lineup of Windows CE 2.0 companion PCs will be available in two of the three announced Microsoft reference design categories: hand-held PCs (H/PCs) and palm-size PCs (P/PCs).

The first shipping products in the third reference category, the Auto PC (A/PC), won't appear until the end of the third quarter of this year. And then there's the as-yet unannounced larger-size PC Companion reference design—code-named Jupiter—which is expected to rival lightweight notebook PCs. You may see the first systems by late summer or early fall of this year.

LOOKING BACK...AND FORWARD

Last year's Windows CE 1.0 H/PCs had to prove themselves against entrenched competition in a tough market. Primarily, they were competing against the wildly successful PalmPilot—the newest iteration of this product is dubbed the Palm III—arguably one of the only major success stories in the hand-held market up to that time.

The first of the CE 1.0 units were nearly identical, which worked for them as well as against them. Similarity may be good for an emerging standard, but it ultimately limits buyers' options. The new Windows CE 2.0 H/PCs and P/PCs, however, give you many more choices. You can select the companion PC that you want based on your preferences and specific needs.

Although there are less PC-centric Windows CE devices, such as golf carts and refrigerators, that will be coming with embedded processors in the future, today's new H/PC and P/PC products have a clear place and case for business, professional, personal information, and communication applications.

A SPECTRUM OF CHOICES

Although both the palm-size and larger hand-held Windows CE personal digital assistants (PDAs) can each be used as a standalone small personal computer, the major role of each is as a companion device. Each one is intended to be paired with a host PC, with which it can automatically synchronize personal information via serial cable or infrared connection. The two currently

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First Looks Online

For daily just-in-time reviews of shipping products, check out First Looks Online at www.firstlooks.com



PHOTOGRAPH BY THOM O'CONNOR

First Looks

available types of devices break out by size and function: The smaller-format P/PCs are for reference and taking notes; the larger but still compact H/PCs are for additional productivity and communications.

For this roundup, we tested the first three P/PCs on the market, as well as three of the newest H/PCs. All of the models will be shipping by the time you read this or shortly thereafter. In the P/PC category, we looked at a production line sample of the Casio Cassiopeia E-10 (\$400 street); and near-production versions of the Everex Freestyle (three different models, \$330 to \$500 street), and the Philips Nino 300 (two versions, \$400 to \$500 street).

You'll pay more for an H/PC device—but you'll also get more. Here, we review the Hitachi HPW-200EC (\$900 list), the NEC MobilePro 750C (\$900 street), and the Novatel Contact (\$1,000 street). Both the Hitachi and Novatel systems were tested in almost final versions; the NEC was a final market model from the first manufacturing run.

P/PCs: ONE-HANDED COMPUTING

If you want the smallest device that you can get for handwriting or voice-recording short notes and storing information about contacts, tasks, and appointments, the palm-size P/PC is the PDA for you. Just think of them as Windows-centric PalmPilots with voice recorders. These devices weigh from 5 to 7 ounces, measure roughly three-quarters of an inch thick, 3.3 inches wide, and about 5 inches deep, and come with 4MB to 8MB of RAM and 8MB of ROM. The operating system and standard applications are all stored in ROM, leaving RAM available for user-added applications and data.

Each P/PC has an integrated microphone and speaker with a standard voice recorder. Designed for use with one hand only, these devices have buttons on the front and on one or more sides (depending on the model), and

all have at least one integrated handwriting recognition program, in addition to an on-screen, pop-up keyboard. Like H/PCs, each P/PC has an infrared transceiver and a serial communications port. P/PCs also include standard docking cradles with serial cables for synchronizing data with host PCs.

Microsoft's reference design requires CE devices to have a CompactFlash slot, initially intended for memory and BIOS upgrades. In fact, all P/PCs currently on or near-ready for the market have larger, Type II CompactFlash slots to accommodate upcoming thicker CF cards that will function as modems, pagers, and next year, even tiny hard disks.

The monochrome, backlit, four-shade P/PC display has a resolution of 240 by 320 pixels, and measures 2.3 inches wide by 3.1 inches high, or 3.9 inches diagonally. The whole screen is available for application display, unlike 3Com's Palm devices, each of which have an identical-size display but reserve the lower three-quarters of an inch as an input area. Also, Palm devices support only 160-by-160 resolution.

Seeking higher resolution on a small screen may seem like a self-defeating endeavor. But in an impressive demonstration of what can be done on a small screen, the standard P/PC calendar application has a 12-month display mode that shows the entire year at once. To access a day-view screen, just tap on a given date.

Standard Microsoft applications for the P/PC platform include Windows CE OS 2.01, Windows CE Services 2.1, Pocket Outlook (calendar, tasks, and contacts), Inbox, Note Taker,

Voice Recorder, World Clock, CIC's Jot handwriting recognition software, Solitaire, and a calculator.

A standard application, Channels, is used for off-line Web browsing. Content is downloaded from special Mobile Channel content providers such as MSNBC. But to use this feature, you must have Internet Explorer 4.0 on your host PC; content is downloaded onto the

host and then copied to the P/PC during synchronization for later browsing—a good way to catch up with the

With automatic synchronization, if you work on a standard PC with a P/PC in its docking cradle, any changes you make during the day on your calendar, task list, or contact manager are automatically copied to the P/PC as they are made. Whenever you leave for the day or go to a meeting, you just lift the P/PC from the cradle and the data on stored therein is current.

While you're away from your desk, any updates or additions that you make are likewise transferred to the host PC as soon as you put the P/PC back in its dock. This feature synchronizes automatically with Microsoft Schedule+ 7.0a, Microsoft Outlook 97 and Outlook 98, and the Microsoft Exchange client. Third-party software is available to enable synchronization with other PIMs.

With so much in common, you're probably wondering what differentiates one P/PC from the next. The three we review here are indeed generally similar but vary in action and placement of the controlling buttons. The differences are also in the design of their respective docking cradles and in the bundled bonus software.

Casio Inc.

Casio Cassiopeia E-10

The Casio Cassiopeia E-10 P/PC stands out from the crowd with its silvery gray, industrial-design-style case. The unit has four buttons on the bottom front of the case, below the screen: a power/backlight button, and function buttons for the Calendar, Contact, and Task applications. The remaining control buttons on the left side of the unit include an Action button with a roller dial for item selection, an exit button, and a button to start the voice

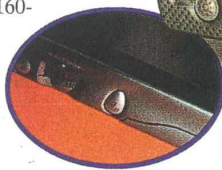
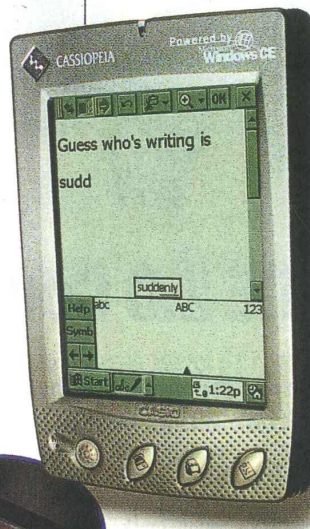
Casio Cassiopeia E-10

Street price: \$400

Casio Inc., Dover, N.J.;
800-962-2746; 973-361-5400

www.casio.com

Choose 413 at
www.pcmag.com/infoink



ACTION! The Cassiopeia's side-mounted Action button lets your scroll through and select items on-screen.

news or other content during a commute or daily walk.

You have three major options for synchronizing data between a P/PC and a host PC. You can activate synchronization manually, start automatically on connection, or set synchronization to monitor connected devices and update information that's out of date. In the latter case, data that is changed on either the host or CE device is updated automatically on the other system.

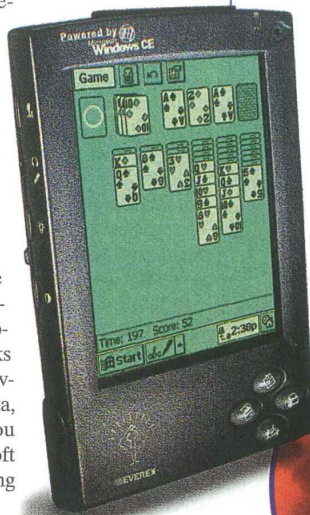
recorder. The E-10 also has an earphone jack so you can listen to voice notes in privacy.

Powered by a 66-MHz NEC VR4111 CPU, the E-10 has 4MB RAM, which is expandable via the CompactFlash slot. The two-piece docking cradle has a dark-gray base and a removable, clear plastic upright support. We found that the support piece really isn't necessary; removing it makes the base easier to pack for travel. The E-10 weighs 5.5 ounces and measures 0.7 by 3.2 by 4.9 inches.

As the only shipping model of the P/PCs tested here, the Casio is the best representative of how well handwriting recognition, voice re-cording, and application synchronization works in the product category. Whenever you want to enter or edit data, a tap on the task bar lets you choose between the pop-up soft keyboard or the Jot handwriting recognizer.

The Jot recognizer works with natural keystrokes or with one-stroke characters. A quick online reference demonstrates how to create characters correctly. A 14,000-word dictionary tries to anticipate the words that you are writing, with pop-up selection options for quick word

completion. The standard version of CIC's Jot uses a limited part of the screen for input, but a full-screen version is available for \$24 via the company's



Everex Freestyle

List price: \$329 (4MB); \$399 (8MB); \$499 (8MB w/modem)

Everex Systems, Inc., Fremont, CA; 888-725-6724; fax: 888-725-6329; freestyle.everex.com
Choose 414 at www.pcmag.com/infolink.

each recording date and time stamped for quick perusal. There are a variety of recording codecs available, but the standard codec that is used compresses the sound to approximately 16 minutes per megabyte of storage.

Bonus software with the E-10 (provided on a CD-ROM) includes the SmART Commander command-and-control program, bFAX Express, LandWare's Financial Calculator, Tetris CE, Quicken Expensable, MeetingMinder, File Find Utility, and the Casio Digital Camera Viewer.

The E-10 is rated to run from 25 to 40 hours on two triple-A alkaline batteries. Like all Windows CE palm-size PCs, the Casio unit also has a small, coin-size lithium ion battery as a backup. An AC adapter is not standard but is available as a \$20 option. The

company doesn't sell rechargeable batteries for the E-10, but the device will run on standard triple-A nickel hydride rechargeable cells.

Additional options for the E-10 include a 19.2-Kbps modem adapter that fits in the docking cradle (\$99), a variety of cases, replacement stylus (\$5.25), stylus/pen combination (\$10.50), and three CompactFlash memory cards (4MB, \$80; 8MB, \$130; 16MB, \$180).

Like the other P/PCs and H/PCs, the Casio is backed by a one-year warranty. Live technical support is available from 7:00 to 6:00, weekdays. Casio doesn't have a specific replacement or repair-time policy, but according to the company, it treats all service requests on an expedited basis for quick turnaround.

Everex Systems Inc.

Everex Freestyle

Two models of the Everex Freestyle will be on the shelves for sale by the time you read this. The Freestyle Associate A-10 model with 4MB RAM has a list price of \$329; the Manager A-15 with 8MB RAM is expected to sell for \$399; and the top-of-the-line Executive model (available in June) with 8MB and with a

Web site (www.cic.com).

Whether you use single-stroke, Graffiti-like characters, or more natural multi-stroke letters, Jot works quickly and well.

The voice recorder is a handy convenience, with



RECHARGE IT: The Everex Freestyle comes with rechargeable batteries, plus an AC adapter.

SUMMARY OF FEATURES

Windows CE 2.0 PCs

PALM-SIZE HAND-HELD	Casio Cassiopeia E-10	Everex Freestyle	Philips Nino 300	Hitachi HPW-200EC	NEC MobilePro 750C	Novatel Contact
Price of tested configuration	\$400 (street)	\$329 (list)	\$400 (street)	\$900 (list)	\$900 (list)	\$1,000 (street)
Weight (ounces)	5.5	5.3	7.3	28.9	28.8	22.4
Size (HWD, inches)	0.7 x 3.2 x 4.9	0.7 x 3.2 x 4.8	0.8 x 3.4 x 5.3	1.3 x 10 x 5.2	1.4 x 9.6 x 5.4	1.2 x 7.6 x 4.7
Processor/speed (MHz)	NEC VR4111 / 66	NEC VR4111 / 66	Philips R3910 / 75	Hitachi SuperH-3 / 100	NEC VR411 / 80	Hitachi SuperH-3 / 80
Standard/maximum RAM	4MB / 4MB	4MB / 8MB	4MB / 8MB	16MB / 32MB	16MB / 32MB	8MB / 32MB
ROM	8MB	8MB	8MB	12MB	16MB	16MB
Battery type	Alkaline	Nickel hydride	Nickel hydride	Lithium ion	Lithium ion	Lithium ion
Number and size	2 AAA	2 AAA	2 AAA	1 proprietary	1 proprietary	1 proprietary
Rated life (hours)	25-40	20	10-12	10	8-10	8-12
Display type	4-shade gray-scale	4-shade gray-scale	16-shade gray-scale	256-color	256-color	4-shade gray-scale
Diagonal size, in inches/resolution	3.9 / 240 x 320	3.9 / 240 x 320	3.9 / 240 x 320	8.1 / 640 x 240	8.0 / 640 x 240	7.1 / 640 x 240
Modem speed (Kbps)/type	19.2 / In cradle	33.6 / In cradle	19.2 / External	33.6 / Internal	33.6 / Internal	14.4 (wireless, 19.2) / Internal
Standard or optional	Optional	Optional	Optional	Standard	Standard	Standard
Expansion	Compact Flash Type II slot	Compact Flash Type II slot	Compact Flash Type II slot	PC Card Type II slot, Compact Flash slot	PC Card Type II slot, Compact Flash slot	PC Card Type II slot, Compact Flash slot
Repair or replacement turnaround policy	Varies	72 hours	72 hours	72 hours	72 hours	Depends on reseller

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