



## Battery blues

**C**OMPAQ'S (WWW.COMPAQ.COM) IPAQ, which was acquired by Hewlett-Packard (ww.hp.com), has captured a dominant percentage of the Pocket PC PDA market, and the company's Pocket PC- and Palm-based competitors are now modeling their products after its slim,

sleek, and lightweight design. Although my primary PDA is a Casio (www.casio.com) E-125, last fall I picked up an iPaq 3135 for several basic reasons.

First of all, I wanted a backup in case the E-125 died. Second, because upcoming Pocket PC 2002-based units would run only on the Intel (www.intel.com) StrongARM CPU that also powered the iPaq 3135, I figured that lack of new and upgraded software might eventually make the MIPS-powered E-125 obsolete, even if it were still running strong (as happened to my trusty HP 200LX). Flash-memory-based firmware meant I could upgrade the 3135's operating system and applications in the future, and there were some interesting iPaq-based Linux and other open-source projects that looked like potential *EDN* hands-on projects. Finally, a price of less than \$150—the combination of an Amazon.com closeout sale and a Compaq rebate—was too tempting to ignore!

When the PDA arrived, I charged up its battery per the user manual, went through the various configuration menus, and stuck it in the hardware archive (that is, the garage). I've pulled it back out a few times, to test out various software packages and to ship it to PPC Techs (www.pocketpctechs.com) for a memory upgrade. Each time I did so, I found that the 3135's battery was completely drained. This situation wasn't terribly surprising; the real-time clock, DRAM refresh, and other circuits still run even when the unit is "off." Each time, there-

fore, I fully recharged the iPaq's battery before using the device, per manufacturer recommendations. The battery has seen maybe five discharge/recharge cycles in the six months I've had it.

Imagine my surprise, then, to recently discover—while reviewing Cardonware's highly recommended UltraMote (www.ultramote.com) infrared remote-control hardware and software—that the iPaq's battery was completely draining within 24 hours, even if I didn't use the

### USERS HAVE LONG-TERM MEMORIES AND LOTS OF FRIENDS.

PDA. At first, I thought the problem might be related to the memory upgrade or to some software that was running in the background even with the display off. But research on Pocket PC newsgroups and user-discussion Web sites confirmed my fear: The iPaq's lithium-ion battery has a "memory" and doesn't fully (or even mostly) recover after a few superlow discharges.

In a notebook PC or cellular phone, this battery quirk might be irritating, but it wouldn't be earth-shattering. A backup battery maintains stored data in the absence of main battery power, and the main batteries are user-replaceable. So if you forget to leave the gear on trickle charge, your frustration is limited to spending a few dozen dollars on a replacement. But the iPaq batteries are embedded within the PDA; they're not replaceable, like the E-125's. And, also unlike the E-

125, Compaq doesn't include a backup battery in the iPaq. So when the main battery dies, your data's gone, and your \$500 PDA becomes a paperweight.

Fortunately, PPC Techs sells a \$99 replacement-battery kit, and, for those who are squeamish about dealing with tiny screws and fragile connectors, the company will replace your battery for \$79. But the service is a third-party, after-the-fact patch for what I argue is a fundamentally shortsighted Compaq design. Is the iPaq a little thinner and a little lighter, and does it cost a little less than if it had a more robust power subsystem? Sure. (Note that I said it costs less, not necessarily that it's lower-priced.) But do people go on several-week-long vacations? Do they sometimes leave their PDAs at home? And do they sometimes forget to plug those PDAs into their

chargers before they leave? For those folks and others who only occasionally use their iPaqs and other lithium-ion-powered gadgets, it's only a matter of time before the battery bug bites them.

Don't get too caught up in the marketers' zeal for ever-smaller, -thinner and -lighter widgets, or the accountants' zeal to squeeze every last penny out of the bill-of-materials expense sheet. If you do, your widget might get rave reviews when first released, but a few months down the road, the technical-support phones will start ringing, and users' complaints will begin escalating. Do those users have memories like elephants? Do they have lots of family and friends that they talk to? You betcha. Short-term focus can lead to long-term diminished reputation. Designer beware!

Contact me at [bdipert@pacbell.net](mailto:bdipert@pacbell.net).