THE PUBLISHER'S VIEW

What's Happened to the PDA Market?

Hobbit and Polar Disasters Indicate Slow Takeoff, Not Failure

It is hard to find any good news about PDAs these days. With slow sales of Newton and Zoomer, continuing delays with WinPad and Motorola's Envoy, and the collapse of Eo, PDAs are taking a beating.

The slow development of the PDA market has been a major disappointment for some microprocessor vendors. AT&T's Hobbit was the first casualty; being entirely dependent upon PenPoint and Eo for its success, the Hobbit architecture has gone down in flames along with its only customer. Most recently, the joint Intel/VLSI effort, whose first fruit was the 386-based Polar chip set, has hit the rocks.

Was the whole idea of PDAs just a failed fad? I don't think so. There are important lessons in these early failures, but they don't signal any fundamental problem with the PDA concept any more than the collapse of Osborne and Gavilan portended the failure of portable computers. Rather, these early failures and delays are signs that the technology is still immature, and that neither the hardware nor the software has yet reached a stage of refinement that will enable the market to take off.

Microprocessor vendors have been set back by the slow growth of the market, but they have created some of their own problems. AT&T's Hobbit staked its success on a single application—something that, in retrospect, was clearly a big mistake. Hobbit just didn't have enough advantages over existing architectures to justify its existence; it was not an enabling technology for a new marketplace, but just another alternative.

The failure of the Intel/VLSI Polar effort is a little more puzzling, and neither partner is being completely forthcoming. But it seems clear that the chip set had serious design problems that caused Intel to become dissatisfied. Putting the frame buffer in main memory caused performance problems, and some accelerated display functions that were supposed to boost performance weren't used by Microsoft's software. The decision to sacrifice DOS and Windows compatibility tied Polar completely to WinPad, narrowing its market greatly. AMD's 386SC, on the other hand, has comparable integration but remains fully DOS compatible.

VLSI became concerned that the market was taking off too slowly to be worth continuing investment and was frustrated that Intel didn't want to give it access to the 486 core. Meanwhile, delays with the WinPad software made a 486 solution more practical and gave Intel time to rethink its plans. Intel is rumored to have started an internal development program and is probably working with other chip-set suppliers.

Intel's abortive partnership with VLSI did have the positive effects—for Intel—of pulling VLSI away from an imminent deal with AMD, and of diverting VLSI's attention away from the ARM-based Newton, on which the company might otherwise have based its PDA plans.

Despite all this bad news, I remain convinced that PDAs will be one of the biggest new microprocessor markets of the decade—though maybe not for a few more years. Even in today's discouraging market, there are signs of success if you take a broader view of handheld computing devices: total sales of HP palmtops, Sharp Wizards, Psion organizers, and a few vertical-market suppliers are in the millions of units. This is still a relatively small market, within the scale of the PC business, but it is much bigger than the market for pen-based PDAs. Even pen-based PDAs have been modestly successful in vertical markets.

Because software for pen-based machines is still in its infancy, keyboard-based devices have so far been more successful. They are more PC-like and better integrated with desktop systems, which makes them easier to sell to existing PC users. Eventually, however, the pen interface will prevail for handheld devices because of the power and flexibility it offers. If you want a little keyboard, the software can create one on the display, and the better designed on-screen keyboards—such as the one in Magic Cap—are as effective as the calculator-type keyboards in HP's palmtops and much more flexible.

The ease of use that the pen interface enables, combined with faster processors, better displays, denser memories, and wireless communications, will propel the PDA market to tens of millions of units. A device that replaces your address book and calendar while letting you read and send e-mail anywhere, look up travel information, and take and retrieve notes, and maybe even act as a cellular phone, will sell like hot cakes—if it is compact, easy to use, and costs only a few hundred dollars.

There are awesome possibilities for an intelligent sheet of paper, as easy to carry as a notepad but with computational power, communications, and memory behind it; once the hardware is cheap and the software is right, we'll all want one. We need only wait for the chips to become faster, the software more sophisticated, and