■ JIM SEYMOUR

A PC PRIORITY CHECKLIST

What most influences your decision to buy a PC? Is it its performance or reliability record, or maybe even its price tag? Compare your ideas with those of a top PC designer.

A couple of issues back, I recounted part of a very interesting talk I had with Chet Heath, the principal designer of IBM's Micro Channel architecture, found in the PS/2 line.

I wrote then about Chet's emphasis on the importance of the improved reliability of PS/2s. IBM's own internal (unpublished) figures indicate that field experience with PS/2s over the past year and a half has shown them to be two to three times more reliable than PC ATs. That increased reliability translates directly into cost savings, Chet pointed out—especially for those who purchase service contracts, which are far cheaper on PS/2s than on PC ATs and PC-XTs.

Arguing about the economies of owning a PS/2 got us into a discussion of our respective priorities in judging PCs. At first, Chet's list seemed somewhat different from my own—and probably from yours as well. He put performance in seventh place, for example, while I had it in third. His ideas were so provocative that I thought you'd enjoy hearing them here.

THE BIG EIGHT In declining order, from most important to least, Chet's eight-item list of priorities looks like this: personal safety, data integrity, system integrity, reliability, compatibility, functionality, performance, and cost.

"Personal safety" threw me for a loop, especially as the first item on his list. But on reflection, I think he's exactly right: remember, this is a PC designer for the Largest Computer Company in the World speaking.

By personal safety, Chet means simple but important things, such as no sharp edges on metal, no parts that get dangerously hot to the touch in normal operation, and so on.

Second, Chet lists data integrity, or data safety. Chet's definition of data integrity is: "Even if the whole system fails, the data is safe. You may lose the computer, but you don't lose the data."

Fair enough: I'll always prefer to lose a PC over my data in a catastrophic failure, but keep reading.

Third on Chet's list is system integrity. "I mean, for example, that you can't do anything from the keyboard that brings the system down," he says. "And it goes beyond that. I define the 'system' as including anything you're connected to, too, so let's say as well that in a mainframe connectivity environment, where you're downloading datasets, then uploading them back to the mainframe computer, you ought to be able to prevent—or at least detect—any errors."

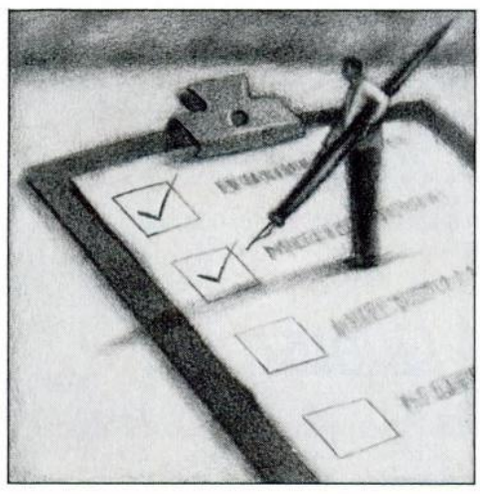

Illustration: Steve Dininno

Reliability comes fourth. (Actually, notice that Chet's first four items really constitute what many of us would collectively identify as "reliability.") He's using the term in the traditional engineering sense, measured in MTBF (Mean Time Between Failures).

As I said, IBM figures show PS/2s to be two to three times more reliable than their predecessors, and my experience generally confirms that.

While I've seen some clusters of D.O.A. problems with PS/2s, and other cases where inordinate numbers suffered from problems right out of the box, in general the Model 50s, 60s, and 80s have proven very reliable indeed.

Fifth on Chet's list is compatibility. Chet acknowledges that on the physical compatibility level, IBM broke the rules with the move from 5¼-inch to 3½-inch floppy disks, and from the AT bus to his new MCA bus design. "But on the *logical* compatibility level, we did very well," he says. "You can run the same programs and datasets you've been using on ATs on the PS/2s."

In sixth place is one of Chet's curve balls: functionality. I was struck not so much by the term, but by his definition: "Don't introduce anything which, no matter how useful it seems, compromises any of the previous five priorities."

"For example," Chet says, "if we were to introduce something like a radio-frequency wireless local area network system into our planar boards—and don't worry,

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we won't—that could compromise everything else we've done on reliability and integrity and safety. We'll never do that."

We finally get to *performance* in seventh and next-to-last place on Chet's list. He's unhappy about a lot of what he's seen in testing PS/2s against other PCs. "The problem is that single-thread PCs have to be benchmarked against single-thread benchmarks. When you have a multiple-thread machine, where that capability was an important part of the design, in fairness you have to measure it against multiple-thread benchmarks.

"The problem with most performance tests I've seen on PS/2s is that they ignore that multiple-thread capability of the computer and treat it as if we were optimizing the design for single-thread performance. The Micro Channel design is all about efficient multiple-thread operation, and I've seen very few tests in print that acknowledge and measure that performance."

Of course, I argued, with few multiple-thread (read "OS/2") applications programs around, and fewer multiple-thread benchmark tests, that kind of testing is both difficult and for most buyers irrelevant. But good performance when executing multiple-thread operations seems likely to become important fairly soon. IBM and its customers are both betting on what is to come: they're hoping that multiple-thread capability (like much of the rest of the PS/2's design) will become a big issue sooner rather than later.

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In last place—and this won't surprise you—is cost.

While Chet is pleased that production efficiencies (growing directly out of a design-to-build engineering approach) make PS/2s less expensive than their IBM predecessors, cost comes in last after safety, integrity, reliability, and performance.

Which is as it should be.

My list? In declining order, reliability, compatibility, performance, and cost. In the end, it's nearly identical to Chet's. PC