THE PUBLISHER'S VIEW

The Upside of the Pentium Bug

Intel Will Benefit Despite Initial PR Fiasco

Now that the Pentium floating-point division bug fiasco has faded, the long-term effects are starting to become clear. Ironically, the net effect for Intel—despite the awesome $475 million price tag—will be positive. Not only has the bug dramatically raised the awareness of Pentium, it has also given Intel an opportunity to show that the company will stand behind its products.

Intel's initial approach, of course, was quite the opposite. By first keeping the bug secret and then taking a restrictive approach to replacements, the company infuriated the computer-buying public. For weeks, Intel's executives seemed to just dig in their heels deeper and deeper. In a single day, however, it all turned around. By announcing the replacement-on-demand policy, Intel instantly ended the string of bad publicity and calmed most buyers' fears.

In the long run, the part of the incident that the computer-buying masses are most likely to remember is the ending: Intel stood behind its product. The bitter memory of Intel's earlier approach will linger for some but isn't likely to have a lasting effect on most people. Even the staggering $475 million cost has a positive side, driving home the point that few companies have the profit margins to stand behind a product to this degree.

Although Intel took a while to recognize it, this incident gave the company the opportunity to show that "Intel Inside" actually means something—and not just that your processor might not divide correctly. Intel's willingness to replace flawed chips is a new reason for buying an Intel processor, raising the bar for its competitors. (Originally, Intel no doubt expected that competitive x86 chips would have more bugs, which would also have given substance to the Intel Inside campaign. Unfortunately for Intel, its competitors did too good a job to give the Intel brand any advantage in this regard.)

To blunt the effect of this replacement policy, Intel's competitors must now offer similar guarantees. Intel again is setting the standard for the industry; as with the instruction set architecture, Intel's x86 competitors will have to follow or be seriously disadvantaged. Motorola and IBM must also respond with comparable support for PowerPC processors.

Intel is taking this campaign to another level by disclosing the errata list for Pentium *(see **090303.PDF**)*, a practice that will also be followed for the P6. We've been trying to get Intel to disclose its bug lists for more than five years, and we probably never would have succeeded were it not for the FDIV incident. Intel's reasons for releasing the list are largely different from those we have suggested. Our concern has been that some system designers and programmers end up struggling with bugs that aren't in the errata lists, and that users didn't have the errata lists. This is part of Intel's concern, but the real issue for Intel is educating the public that microprocessors aren't perfect.

Initially, the disclosure of the errata lists will create additional press coverage, but in time, the net effect will be positive. When errata lists are routinely disclosed, they will cease to attract so much interest. Intel will also be able to deflect any criticism that it knowingly sold flawed chips without adequately informing the buyers. The big issue that remains is how to decide which bugs trigger the free replacement policy, and which ones don't *(see **0902ED.PDF**)*; there are no easy answers here.

Other processor vendors must now endure similar scrutiny or suffer from being seen as overly secretive. When Intel didn't reveal its bug lists, other vendors could use Intel's actions to support their own policies; that excuse is now gone. For AMD, which has offered "bug for bug" compatibility with Intel's 486 chips, this hasn't been much of an issue, but the internally designed K5 will change all that.

When chips are still in development and early sampling, it is reasonable to keep bug lists confidential. But when production parts are shipped, the vendor has an obligation to make its errata list public. We eagerly await the first errata lists for the K5 and Cyrix's M1. And where are the lists for the PowerPC 603 and 604?

Another benefit of the FDIV debacle for Intel is that the company now plans to maintain much more contact with buyers of PCs using its microprocessors, deepening the brand awareness and adding further meat to the Intel Inside concept. Intel set up a customer service operation with hundreds of operators in response to the FDIV issue, and much of this operation will remain in place. The company is also looking at other ways to deepen its connection to users of Intel processors.

Intel can afford to bankroll expensive customer contact campaigns that other vendors will be hard-pressed to match. Just when Intel seemed most vulnerable, the company has managed to turn a crisis into productive evolution, strengthening its grip on the PC industry. ♦

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