AMD Wins Key Microcode Court Case

Jury Lets AMD Use Intel's Microcode for 287 and Other Processors

by Michael Slater

A San Jose jury has ruled in favor of AMD in the pivotal 287 microcode infringement case, establishing AMD's right to use Intel's microcode in its processors. AMD's actions have assumed a victory in this case—the company is already selling as many 486 chips as its factories can make—so the ruling will not result in any new opportunities. But the decision diminishes the cloud that has been hanging over AMD, and it may make it easier for the company to convince outside foundries, as well as new customers, to do business with it.

The potential downside was considerable: had AMD lost this case, it would have had to pull its 486DX chips from the market and focus on lower-profit 486SX parts, which already use clean-room microcode, until its clean-room DX microcode is completed later this year. A loss also would have made all of AMD's 386 and 486DX sales illegal, possibly resulting in an enormous damage award. AMD's rights to the 386 also will be affected by whether or not the 1992 arbitration award is reinstated; this award was gutted on appeal but is now before the California Supreme Court *(see **0713MSB.PDF**)*.

The microcode dispute centers on the interpretation of a 1976 agreement between the two companies that grants AMD the right to copy Intel microcode used in "microcomputers." Intel claimed that this referred to the firmware in its development systems and not to the microcode in the chips; the argument essentially came down to whether the term "microcomputer" referred to microprocessor chips. Even though Intel claimed that it did not, AMD was able to cite numerous cases where Intel used the terms interchangeably.

This is the second time this issue has been tried. In the first trial, the jury ruled that AMD had not proved its case. The judge later threw out this verdict because of evidence withheld by Intel, which Intel dismissed as minor but AMD touted as significant because it allegedly showed that Intel officials believed that AMD had a right to Intel's microcode. With the benefit of the new evidence, a new team of attorneys, and the intimate involvement of CEO Jerry Sanders—who spent 27 days in the courtroom—AMD was able to convince the jury this time around. The jury deliberated only nine and one-half hours before delivering its unanimous verdict.

Sanders was in fine form after the verdict was announced, calling it a victory for "truth, justice, and the American way" and at the same time "putting out an olive branch" for Intel, suggesting that Intel should "do the honorable thing" and bury the hatchet. All evidence suggests, however, that Intel's enmity is far too deep for it to give up until the last straw has been grasped and the last appeal exhausted.

Intel will appeal the latest ruling, but by the time the appeal is heard, AMD will have its clean-room microcode ready, so even a reversal would not force AMD's chips off the market. Because of the lengthy appeal process, a final resolution is unlikely until 1995 or later.

Although this case was technically about the 287, it establishes AMD's right to use all Intel microcode. AMD says that it has no plans to produce a clone of Intel's Pentium processor, even though this agreement would give it rights to the microcode in that chip. AMD expects to sample its independently designed Pentium competitor, code-named K5, by the end of this year.

Separate lawsuits are pending regarding AMD's 386 and 486 chips. The 287 verdict eliminates the major issue in both—microcode copyright infringement—but Intel will continue to pursue other issues.

In the 486 lawsuit, Intel claims that the agreement specifically excludes microcode used to support in-circuit emulation (ICE) functions. AMD does not dispute that it copied the ICE microcode but says that this clause of the agreement refers specifically to designs transferred from Intel to AMD; Intel never transferred the 386 or 486 designs. AMD apparently uses the ICE microcode to implement system-management mode. It probably would not be prohibitive to rework the chips to eliminate this microcode if necessary. This issue will be litigated in a trial set to begin next month.

Second, Intel claims that the contents of one of the programmable logic arrays in the 486, which it calls the

AMD Finds Microcode Bug

Tossing more fuel on the microcode fire, a bug has been found in AMD's clean-room microcode, used in its 486SX and SX2 processors. Fortunately, the bug is quite minor, occurring only when using Santa Cruz Operation (SCO) UNIX to emulate certain other operating systems. The bug does not affect normal applications running under SCO UNIX, nor does it affect the operation of DOS or Microsoft Windows. Because of the unusual circumstances required to trigger the problem, AMD does not plan to recall existing 486SX chips but plans to correct the problem in new chips shipping within 90 days.

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control program, is software—and therefore protected by copyright—but is not microcode, and thus is not covered by the agreement. AMD argues that this isn't really software, and that if it is deemed to be software, then it should be considered microcode.

Intel also plans to pursue several other issues. Intel asserts that AMD's right to copy the microcode does not imply a right to have it copied, while AMD insists that it is free to subcontract parts of the manufacturing process as it chooses, as it has in signing an agreement to have Digital to build its 486 chips. Intel also claims that AMD's rights under the agreement terminate at the end of 1995, while AMD says this date is the cutoff only for determining which of Intel's patents or microcode are covered, and that AMD can continue to build the products indefinitely.

AMD dismisses all of Intel's remaining claims as frivolous. Intel's arguments do seem to be increasingly obtuse. Intel's strategy appears to be one of burying its competitors in litigation: even if Intel ultimately loses, as it has with regularity lately, Intel benefits from the uncertainty it creates in the market and the drain on its competitors' resources.

The drain on AMD has been considerable; Sanders said that $100 million would be a "modest estimate" of AMD's legal fees, which in the past quarter amounted to 4% of the company's revenue during that period—a greater percentage, Sanders pointed out, than PC companies like Dell spend on product development.

The possibility of a large damage award, even if slight, reportedly has decreased AMD's ability to borrow money for fab construction and other business expenses. Although the recent victory improves things significantly, AMD must still negotiate a mine field of additional lawsuits; any negative verdict could result in a major financial loss. ♦

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