

Intel Seeking Royalties from System Makers

Attempt to Apply MMU Patent to System Makers Facing Stiff Opposition

By Michael Slater

In a move designed to thwart compatible chip makers' efforts to undercut Intel's pricing, Intel has begun seeking royalties from system makers that use non-Intel x86 microprocessors. The royalty demand is based on a patent that, according to Intel, applies to the system using the microprocessor, so any patent cross-license agreement held by the chip maker does not apply. System makers using Intel microprocessors do not need a license; according to the Intel VP Tom Dunlap, Intel's customers have an implied license because Intel induces its customers to use the processor in such a way as to infringe the patent.

For systems using non-Intel processors, Intel is demanding a license fee of \$15 per system for 386-based computers, \$25 per system for 486-based computers through 33 MHz, and a fee to be determined (approximately 1% of the system price) for faster processors. Ironically, Intel's legal department defines a 486 by its instruction set, and therefore considers Cyrix's 486SLC/DLC to be a 486—quite the opposite of what Intel's marketing department has been saying.

The patent at issue is number 4,972,338, titled "Memory Management for Microprocessor System," filed 4/19/88 and granted 11/20/90. It describes the 386 memory-management system using a segmentation unit, a page cache (TLB), and a page table stored in main memory. In essence, this is a patent on TLB-based memory management, combined with segmentation, as implemented in the 386 architecture. It presumably was allowed despite ample prior art on the general concept because the specifics of the 386 implementation are unique.

If Intel succeeds in collecting royalties from system makers—which is far from assured—it will have found a way to essentially collect a tax on non-Intel x86 processors. This could make it much more difficult for other vendors to maintain a pricing advantage. It also could give Intel a significant royalty stream. AMD claims to be shipping 386 processors at a rate approaching 10 million units per year, which would translate into \$150 million a year in royalties that makers of AMD-based systems would have to pay to Intel. Intel's patent could be worth hundreds of millions of dollars a year, in addition to serving as a formidable competitive weapon.

Intel's attempts to collect royalties from system makers were made public by Cyrix, which claims that Intel has specifically targeted its customers. Cyrix VP Tom Brightman said that he knows of one customer that

canceled a Cyrix-based notebook design because of Intel's licensing demands. Some observers characterize Intel's royalty demands as a last-ditch effort to stem the impending flood of 486-compatible processors, noting that it is curious that Intel did not raise this issue two years ago when AMD began shipping 386 processors.

In a press release titled "Cyrix Exposes Intel Patent Extortion Scheme," Cyrix claims that Intel is "... engaging in a systematic campaign of intimidation and harassment of Cyrix customers based on a deceptive presentation of Intel patent rights."

Cyrix believes that Intel's licensing demands are unjustified because the chips are licensed by virtue of being fabricated by SGS-Thomson. Indeed, the court has ruled that the chips are licensed, but the dispute is whether Intel can still demand a license from the system maker.

The first claim in the patent describes the microprocessor itself. Intel agrees that chip makers with a patent license are licensed under this claim. Claims 2 and 6, however, describe the combination of the microprocessor with memory, with the page tables stored in the memory, and Intel says that this combination is not licensed as part of the chip-makers license. According to Dunlap, TI's patent license explicitly exempts such combinations.

Cyrix claims that Intel's demand is invalid because the microprocessor cannot be used without memory, and therefore there is an implied license to use the processor in this way that results from the licensing of the chip maker. In Cyrix's view, there is no way to use Claim 1 without infringing Claim 2, so users must have an implied license to Claim 2. Cyrix has filed a motion for summary judgment on the issue of the implied license with the same Texas court that endorsed the SGS-Thomson license as protecting Cyrix's chips.

Intel counters that there is no implied license because there are non-infringing uses; a system that runs DOS or a real-time operating system does not use paging and does not infringe the patent.

Similar issues are currently being addressed in Texas Instruments' suits against Tandy, Dell, and others. TI has broad system patents, and the company is asserting that virtually all makers of microprocessor-based systems must pay royalties to TI, despite any licensing of the microprocessor makers.

Should the implied license argument fail, Cyrix plans to raise anti-trust issues. An Intel backgrounder on the licensing program (copies of which were provided by Cyrix) states "For systems using genuine Intel CPUs,

an 'express' or explicit license will be granted when orders are confirmed. For microprocessor systems based on imitations of the Intel x86 microprocessors that infringe patent '338, a royalty-bearing license program has been developed." Cyrix believes that Intel's actions violate the anti-trust statutes because the license is granted without charge to customers of Intel's microprocessors. The license is bundled with the processor; Intel isn't offering lower processor pricing to customers that promise not to use paging.

Intel discounts such charges as being without merit, saying that there is no way Intel could *not* grant its customers an implied license to use the processor in the way

Intel recommends, and that an explicit license will be granted to Intel customers only when customers for some reason feel the need for an express license.

Intel's attempts to collect royalties from system makers won't go unopposed; according to Brightman, Cyrix is telling its customers that they do not need the license and that Cyrix will assist in any necessary defense. Should PC makers refuse to sign up, it will be interesting to see if Intel is willing to take them to court. Even if the royalty demands succeed only in scaring some business away from Cyrix, TI, and AMD, however, Intel may deem the effort to have been worthwhile regardless of the legal outcome. ♦