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## Intel's Pentium Problems Update; Technology Alert, January 1995

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## INTEL'S PENTIUM PROBLEMS UPDATE

by Robert C. Wynne, CPA

*Bob Wynne is a partner in the accounting firm Salada, Wynne, Kling & Company, P.C. of Niagara Falls, New York and the Chairman of the AICPA Information Technology Executive Committee. In this Alert he discusses the problems associated with Intel's Pentium microprocessor. The Pentium is the latest generation of the Intel chip to serve as the central processor in PCs.*

### Calculation Problems

Intel Corporation has announced that it has shipped its Pentium processors with a defective floating-point unit (FPU). An FPU is a special processor built into the Pentiums for accelerating complex mathematical calculations. They stated that if you execute some double precision division equations, your machine may come up with the wrong answer. Recently, *InfoWorld* magazine showed a test to determine if you have a defective Pentium. Using the Excel spreadsheet, perform the following calculation: divide the number 4195835 by 3145727, and then multiply by the same number. The result should be 4195835, if you get 4195579, you have a defective chip. There are an estimated 2 million defective Pentium chips in circulation according to a recent report in *Newsday*.

The area for concern for accountants would be in spreadsheet results that may use division or any other programs such as statistical analysis programs and even tax programs that would use division. The official word from Intel is that the problem has been fixed and that new chips are already in production and "Extensive engineering tests demonstrated that an average spreadsheet user could encounter this subtle flaw of reduced precision once in every 27,000 years of use." However, a growing number of scientists and engineers report that the error could appear more frequently than Intel has predicted.

### Write-back Cache Problems

The second problem surfacing with the 100-MHz pentiums is that some of the new multi-threaded software environments such as WindowsNT, OS/2 and Unix will not run with the write-back cache enabled. Intel admits "If you use write-back [cache], you can't use the 100 MHz [Pentium]." Intel has stated that the problem has been corrected in chips currently in production. The solution is to turn off the write-back cache and enable the write-through cache, but in so doing you lose performance, which was one of the main reasons for acquiring the new processor.

**AICPA**

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TECHNOLOGY ALERT

A recommendation for anyone buying Pentiums to run the new powerful desktop operating environments mentioned above — purchase with caution. Try to get the manufacturer's assurance in writing that the two problems mentioned have been corrected on the machine you are purchasing. Intel has said it will offer all customers a free replacement part upon request, although it may be two or more months before replacement chips are widely available. Customers interested in receiving an updated version of the microprocessor can call the company at 1-(800) 628-8686. Technical assistance for the users who want to replace the chip themselves will be available at the same toll-free number. For people who do not feel comfortable installing the new chip, Intel is arranging for service providers to handle the replacement free. The program will take 30 to 60 days before a network of worldwide providers is set up.

The *New York Times* reported that the offer will be in effect for the lifetime of a user's PC, which means Pentium owners do not have to replace the chips immediately. Those who do not want a replacement immediately or have not decided whether to replace the chip may call Intel for a letter guaranteeing a free replacement in the future.

Customers calling for a replacement will need to provide a credit card number to guarantee return of the old Pentium chip to Intel. If the old chip is not returned within 30 days, the credit card will be charged from \$495 to \$995, depending on which microprocessor is requested. To get the correct replacement, callers should know their computer system, the brand name and model number or the speed of the microprocessor.