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Transmeta Sees a Way To Cut Chips' Leakage

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Abstract (Article Summary)

"Transmeta is making a bold statement, particularly at a time when Intel is mute," said Richard Doherty, a computer industry analyst and president of Envisioneering, a Seafood, N.Y., consulting firm. He added, however, that he would feel more comfortable about Transmeta's advance after other manufacturers were able to confirm the new software approach.

David Ditzel, Transmeta's founder and chief technical officer, did not divulge details on Tuesday about the advance, or say when products using the approach would be commercially available. Mr. Ditzel said the software technique would work with standard industry manufacturing processes, requiring only minimal modifications. Transmeta, which is based in Santa Clara, Calif., plans to license the approach to other chip companies.

Until now, Transmeta has been competing against Intel with compatible microprocessor chips that are known for their low power consumption. As Intel aggressively moved into mobile markets, however, Transmeta has lost ground and repositioned itself for specialized applications.

Full Text (579 words)

Copyright New York Times Company Oct 15, 2003

Transmeta, a troubled Silicon Valley chip maker, described an unusual software technique on Tuesday that it said would help solve a problem bedeviling the semiconductor industry. It is that tiny transistors tend to leak increasing amounts of current as they shrink to sizes that can be measured in terms of handfuls of atoms.

Leakage in recent years has become an increasingly thorny matter as the chip industry moved to new manufacturing processes.

In recent weeks, reports began circulating that Intel, the world's largest chip maker, has faced severe challenges in making the shift to the most advanced manufacturing technologies -- which are expected to etch lines as narrow as 90 nanometers, or about one-thousandth of a human hair.

At the industry conference where Transmeta made its announcement, industry analysts noted that Intel, which in the past has typically increased the speed of its most advanced microprocessor chips four times a year, introduced just one "speed bump" in 2003. Intel chose this year not to make a technical presentation at the Microprocessor Forum, which is being held here this week and has served as a forum for companies to introduce advanced processor designs.

"Transmeta is making a bold statement, particularly at a time when Intel is mute," said Richard Doherty, a computer industry analyst and president of Envisioneering, a Seafood, N.Y., consulting firm. He added, however, that he would feel more comfortable about Transmeta's advance after other manufacturers were able to confirm the new software approach.

An Intel spokesman declined to comment until more details of the technology are made public.

The ability to control leakage could prove to be a vital advantage in the future by both increasing manufacturing yields and permitting chip makers to develop products that consume far less power.

It could also have an effect on desktop processors, which in recent years have been consuming ever-increasing amounts of power as they reached higher speeds.

Peter Glaskowsky, editor in chief of Microprocessor Report, said the semiconductor industry had been exploring a variety of hardware-based methods for controlling the amount of power consumed by tiny transistors. The industry's hurdle is that the more quickly transistors have been switched on and off, the more power they consume. "If you can use software to create transistors that are fast, but can consume low power, this obviates the whole debate," Mr. Glaskowsky said.

David Ditzel, Transmeta's founder and chief technical officer, did not divulge details on Tuesday about the advance, or say when products using the approach would be commercially available. Mr. Ditzel said the software technique would work with standard industry manufacturing processes, requiring only minimal modifications. Transmeta, which is based in Santa Clara, Calif., plans to license the approach to other chip companies.

"We believe that leakage can be tamed," Mr. Ditzel said of the technology that his company has named LongRun2. He said it had grown out of Transmeta's background in blending software and hardware technologies. The company's first chip, introduced in 2000, worked by emulating the instructions for Intel's X86 chips in software.

"If you're a semiconductor company," Mr. Ditzel said, "you try to solve all problems through hardware approaches. The interesting thing about Transmeta as a company is that we have a culture of inventions that are interdisciplinary."

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