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The New York Times

Intel Concedes 64-Bit Chips Are Wave of the Future

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Abstract (Article Summary)

That approach, however, was thwarted by A.M.D., the microprocessor industry's plucky second fiddle. A.M.D., from Sunnyvale, Calif., took a different tack, gambling on creating a new line of chips that included special 64-bit extensions, making it possible to run traditional 32-bit Intel-compatible programs as well as newer 64-bit software.

The Intel announcement gives programmers and PC makers an incentive to commit to 64-bit chips immediately, putting A.M.D. in the lead until Intel is able to get its 64-bit chip to market.

"What this suggests to A.M.D. is that Intel is now following our leadership," said Ben Williams, A.M.D.'s director of the server and workstation business segment. On Tuesday, A.M.D. brought out a new version of its Opteron 64-bit microprocessor family that will consume far less power than its current models and is aimed at making its line more useful for corporate servers.

Full Text (988 words)

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The Intel Corporation, which has long dominated the computer microprocessor market it created in 1971, did an abrupt about-face on Tuesday, announcing that it would follow the lead of its much smaller rival, Advanced Micro Devices, by building 64-bit capability into its most popular chips.

The strategy reversal is a setback for Intel, the world's largest chip maker, which had been trying to convince computer users that more powerful 64-bit processing aimed at heavy-duty corporate and scientific computing should be handled exclusively by its ambitious, but incompatible, Itanium processors.

Until today, Intel, which is based in Santa Clara, Calif., had publicly sought to continue with 32-bit operations for personal computer and small server applications relying on its Pentium and Xeon processor lines.

That approach, however, was thwarted by A.M.D., the microprocessor industry's plucky second fiddle. A.M.D., from Sunnyvale, Calif., took a different tack, gambling on creating a new line of chips that included special 64-bit extensions,

making it possible to run traditional 32-bit Intel-compatible programs as well as newer 64-bit software.

That gamble has now paid off with the announcement today from Craig Barrett, Intel's chief executive, that his company plans to add 64-bit capabilities to its Xeon server processors during the next quarter and incorporate similar 64-bit processing features in its next-generation workstation processors before the end of the year.

The Intel announcement gives programmers and PC makers an incentive to commit to 64-bit chips immediately, putting A.M.D. in the lead until Intel is able to get its 64-bit chip to market.

Not long ago, 64-bit computing -- which allows data to move through a computer far more quickly and makes it possible for the microprocessor to handle much greater amounts of memory at any one time -- was thought of as useful only for the most esoteric scientific and engineering applications. But with consumer PC tasks like video editing and even game playing soaking up immense amounts of computing effort, that view has changed.

Intel is not about to be unseated by A.M.D. anytime soon, industry analysts said, but its failure to foresee the potential market demand for compatible 64-bit processors could hurt it in one of the most profitable segments of its business.

"This is a very high-stakes game," said Richard Doherty, president of Envisioneering, a computer industry consulting firm in Seaford, N.Y. "The profit margins in the 64-bit computing world are very much higher than the rest of the industry."

A.M.D.'s executives hailed Intel's about-face as proof that its approach was correct. They said they had no intention of standing still while Intel races to catch up.

"What this suggests to A.M.D. is that Intel is now following our leadership," said Ben Williams, A.M.D.'s director of the server and workstation business segment. On Tuesday, A.M.D. brought out a new version of its Opteron 64-bit microprocessor family that will consume far less power than its current models and is aimed at making its line more useful for corporate servers.

Both companies' chips will support a version of Microsoft's Windows operating system that was originally designed for the A.M.D. 64-bit Opteron processors.

Microsoft, which began shipping a trial 64-bit version of its Windows XP and Windows Server operating system in December, said that it planned to release final software during the second half of this year.

Sun Microsystems and I.B.M. have already announced Opteron systems and industry analysts suggested that Hewlett-Packard, which helped develop Intel's Itanium processor, also has an Opteron-based computer in the works.

Those moves have increased the pressure on Intel to make the shift and to endorse 64-bit computing that is compatible with its 32-bit designs.

"This has to be the worst kept secret in San Francisco," Mr. Barrett said, acknowledging that the computer industry has been expecting Intel to shift course for the last year.

But Mr. Barrett gave no indication that Intel was planning to give up on its multi-billion-dollar commitment to the more powerful Itanium -- a chip that has set speed records but so far has sold only in limited numbers.

"I prefer to think of them as two different spaces entirely," Mr. Barrett said during a question-and-answer session after delivering a speech to open the company's annual Intel Developer Forum, held here through Thursday.

He cited the company's commitment to ensure that Itanium remains more than twice as fast as its Xeon microprocessors and said there were features in the Itanium chip that would continue to distinguish it from less-expensive microprocessors.

Intel now finds itself in an odd position. During the mid-1980's to mid-1990's it fought a bitter war against makers of more powerful microprocessor chips based on a design known as reduced instruction set computing, or RISC.

Although RISC chips were faster than Intel's lower-cost desktop processors, they were overwhelmed by Intel's sheer

volume of production and far larger economies of scale.

Today, Intel's Itanium processor is in a similar position to the old RISC chips: the computing market has been trained by Intel to prefer high- volume and low-cost chips, which are capable of competing with higher- performance devices by being clustered in arrays of cheap processors.

During his talk on Tuesday, Mr. Barrett said that the company sold 110,000 Itanium processors last year and expected to double that amount in 2005.

After the presentation, Mike Pfister, vice president and general manager of Intel's Enterprise Platform division, argued that the Itanium chip would survive by focusing on specialized markets.

"Big databases are Itanium forever," he said.

Whatever the merits of that argument, Intel was forced in the end to give up on 64-bit compatibility because of the pressures from more ordinary users.

Apple Computer has already begun offering 64-bit computing for certain applications and on Tuesday Microsoft's executives said that game developers were particularly interested in 64-bit processors.

[Photograph]

Intel's chief, Craig Barrett, before making his keynote address at the Intel Developer Forum in San Francisco yesterday. (Photo by Peter DaSilva for The New York Times)(pg. C3)

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