Intel keeps Moore's law on track
SAN JOSE, California (AP)
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Contradicting fears that the semiconductor industry's pace of development is slowing, Intel Corporation has announced it has achieved a milestone in shrinking the size of transistors that will power its next-generation chips. The Santa Clara, California-based company said Monday it's created a fully functional 70 megabit memory chip with transistor switches measuring just 35 nanometers -- about 30 percent smaller than those found on today's state-of-the-art chips. By shrinking the size of the transistors and other features etched into the silicon, more of the tiny devices can be squeezed onto a single chip. As a result, microprocessors become more powerful and memory chips can store more data without growing in size. "Intel continues to meet the increasing challenges of scaling by innovating with new materials, processes and device structures," said Sunlin Chou, general manager of Intel's Technology and Manufacturing Group. Intel said products built with its 65-nanometer process technology -- a label that describes the average size of the minuscule chip features -- are on track for delivery in 2005. If so, it would be in keeping with a famous forecast by Intel founder Gordon Moore, who in the late 1960s predicted the number of transistors on a chip would roughly double every two years. "Moore's Law," as the prediction is now known, has held true since then. Intel and other semiconductor companies have thrived on the ability to pack more performance into their chips. But with each generation, it becomes increasingly difficult to maintain the pace as the tinier and tinier transistors test the physical limits of silicon. "As we scale to smaller dimensions, our job gets tougher," said Mark Bohr, an Intel senior fellow. In fact, chips built with the current 90 nanometer process technology saw several delays from many chip manufacturers as they struggled with issues such as heat and power dissipation. For its next generation chips, Intel said it incorporated new materials and other technologies to work around the problems. The company also developed so-called sleep transistors that shut off the electrical current to areas of a chip that are not being used. As a result, power consumption drops -- something that will decrease heat generation and help battery-powered devices last longer between charges. Copyright 2004 The Associated Press <http://www.cnn.com/interactive_legal.html>. All rights reserved. This material may not be published, broadcast, rewritten, or redistributed.

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