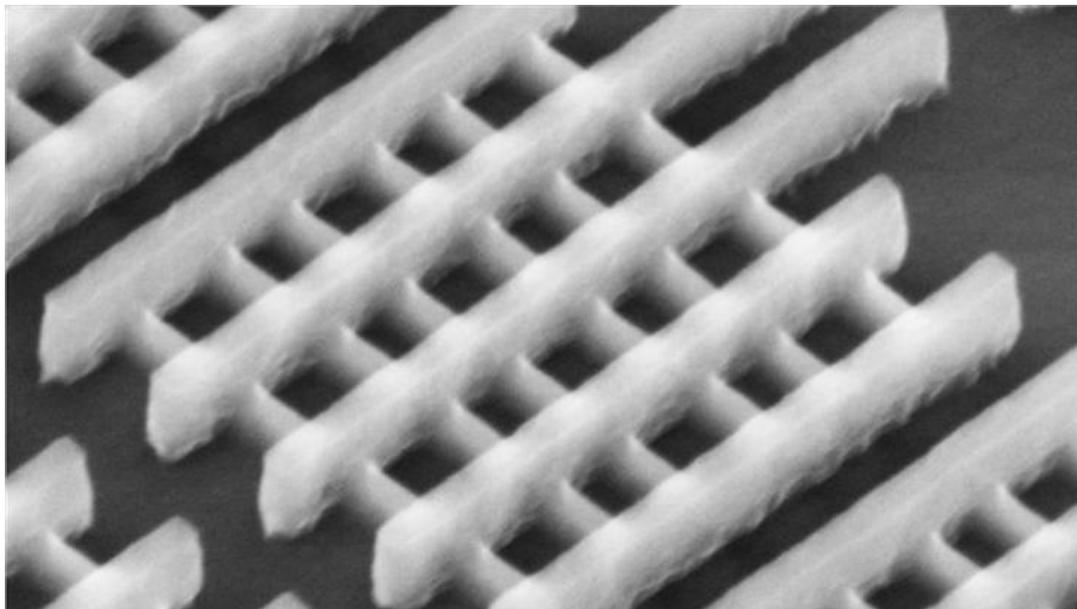


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May 2011

Intel Historic Breakthrough

05 MAY 2011



In a major technological and design breakthrough, Intel Corporation announced on Wednesday (May 4) a giant step forward in the evolution of the transistor with the creation of a 3D design described as "revolutionary" – and with the potential to transform product design.

Mark Bohr, Intel senior fellow, said: "The low-voltage and low-power benefits far exceed what we typically see from one process generation to the next. It will give product designers the flexibility to make current devices smarter and wholly new ones possible."

The transistor is the microscopic building block of modern electronics. For the first time since the invention of silicon transistors over 50 years ago, transistors using a three-dimensional structure will be put into high-volume manufacturing, Intel said.

Intel is introducing a 3-D transistor design called Tri-Gate, first disclosed by Intel in 2002, into high-volume manufacturing at the 22-nanometer (nm) node in an Intel chip codenamed "Ivy Bridge." A nanometer is one-billionth of a meter.

The three-dimensional Tri-Gate transistors represent a fundamental departure from the two-dimensional planar transistor structure that has powered not only all computers, mobile phones and consumer electronics to-date, but also the electronic controls within cars, spacecraft, household appliances, medical devices and virtually thousands of other everyday devices for decades.

"Intel's scientists and engineers have once again reinvented the transistor, this time utilizing the third dimension," said Intel president and CEO Paul Otellini. "Amazing, world-shaping devices will be created from this capability as we advance Moore's Law into new realms."

Scientists have long recognized the benefits of a 3-D structure for sustaining the pace of Moore's Law as device dimensions become so small that physical laws become barriers to advancement.

The key to the breakthrough is Intel's ability to deploy its novel 3-D Tri-Gate transistor design into high-volume manufacturing, ushering in the next era of Moore's Law and opening the door to a new generation of innovations across a broad spectrum of devices.

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