Intel Corporation
2200 Mission College Blvd.
Santa Clara, CA 95054

BACKGROUNDER

OVER 6 DECADES OF CONTINUED TRANSISTOR SHRINKAGE, INNOVATION

Intel's 22 Nanometer Technology Moves the Transistor into the 3rd Dimension

SANTA CLARA, Calif., May 2011 – Since the invention of the transistor in 1947, technology has progressed swiftly, paving the way for ever more powerful, yet more cost-effective and energy-efficient products. Continuation of these advances, at the pace dictated by Moore's Law, has required numerous innovations; recent notable ones are strained silicon (introduced by Intel in 2003) and high-k/metal gate (introduced by Intel in 2007). Intel is now about to make yet another radical change in its transistor design, one that will deliver an unprecedented combination of performance and energy efficiency in a whole range of computers, from servers to desktops, and from laptops to handheld devices.

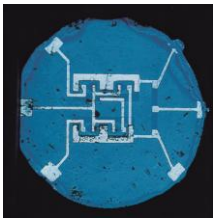
For the first time in history, silicon transistors are entering the third dimension. Intel is introducing the tri-gate transistor, in which the transistor channel is raised into the 3rd dimension. Current flow is controlled on 3 sides of the channel (top, left and right) rather than just from the top, as in conventional, planar transistors. The net result is much better control of the transistor, maximizing current flow (for best performance) when it is on, and minimizing it (reducing leakage) when it is off.

Let's take a look back at the transistor's history and key milestones as Intel's 22nm innovation ushers in new semiconductor technology and ensures the continuation of Moore's Law for the foreseeable future.

- Dec. 16, 1947: William Shockley, John Bardeen and Walter Brattain successfully build the first transistor at Bell Labs.

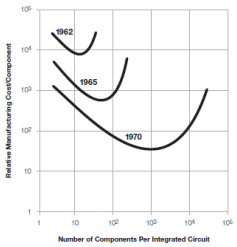
- 1950: William Shockley develops the bipolar junction transistor, the device most commonly referred to as a transistor by today's standard.

- Oct. 18, 1954: The first transistor radio, the Regency TR1, was put on the market and contained just four germanium transistors.



- April 25, 1961: The first patent is awarded to Robert Noyce for an integrated circuit. Original transistors had been sufficient for use in radios and phones, but newer electronics required something smaller – the integrated circuit.

-- more --

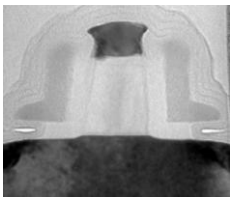


- 1965: Moore's Law is born when Gordon Moore predicts that the number of transistors on a chip will double roughly every year (a decade later, revised to every 2 years) in the future, as stated in an article in *Electronics Magazine.* Three years later, he and Bob Noyce founded Intel, short for "integrated electronics."

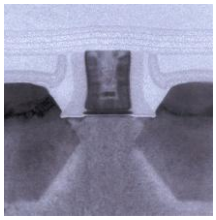
- 1969: Intel develops the first successful PMOS silicon gate transistor technology. These transistors continue to use a traditional silicon dioxide (SiO_2) gate dielectric, but introduce new polysilicon gate electrodes.

- 1971: Intel launches its first microprocessor – the 4004. The 4004 was 1/8 of an inch by 1/16 of an inch, contained 2250 transistors and was manufactured with Intel's 10micron PMOS technology on 2 inch wafers.

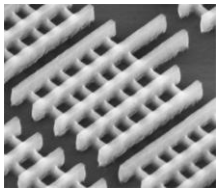
- 1985: The Intel386™ microprocessor is released, featuring 275,000 transistors – more than 100 times as many as the original 4004. It was a 32-bit chip and was multitasking, meaning it could run multiple programs at the same time. It was originally manufactured using 1.5 micron CMOS technology.



- Aug. 13, 2002: Intel unveils several technology breakthroughs in its forthcoming 90nm process technology, including higher-performance, lower-power transistors, strained silicon, high-speed copper interconnects and a new low-k dielectric material. This will be the first process in the industry to implement strained silicon in production.



- Jan. 29, 2007: Intel reveals breakthrough transistor materials – high-k and metal gate – that it will use to build the insulating wall and switching gate on the hundreds of millions of microscopic 45nm transistors inside the next generation Intel® Core™ 2 Duo, Intel Core 2 Quad and Xeon® families of multi-core processors – codenamed Penryn.



- May 4, 2011: Intel announces that it is about to put a radically new transistor design into volume production. The tri-gate transistor will deliver an unprecedented combination of performance and energy efficiency in a whole range of computers, from servers to desktops, and from laptops to handheld devices.

Intel, the world leader in silicon innovation, develops technologies, products and initiatives to continually advance how people work and live. Additional information about Intel is available at www.intel.com/pressroom.

-- 30 --