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[Intel's 2 Billion Transistors CPU Gets Pictured, Details](#)

The chip features a huge, 30 MB cache pool

Intel's 2 billion transistors Itanium processor, also known as Tukwila, managed to stir up some attention lately, as it's not every day you see a chip packing such amount of transistors. Tukwila is a quad-core part built on the 65-nanometer process node that comes with a huge amount of cache memory. Earlier this week, during the pre-IDF briefing, Pat Gelsinger, Intel's senior vice president and general manager of the Digital Enterprise Group, spilled some details about the upcoming chip, that is alleged to deliver twice the performance of the dual-core Montvale (the 9100 series Itanium). The Tukwila behemoth is built on a 21.5x32.5 square-millimeter die and will run at a default clock speed of only 2 GHz. However, the true power of the processor does not lie in its clock speed, but rather in the huge on-die cache announced to reach 30 MB. Moreover, according to Gelsinger, the processor will also support hyperthreading, which would allow the chip to simultaneously handle up to eight instructional threads. Another novelty in the processor's design is the use of the new QuickPath Interconnect (QPI), and dual integrated memory controllers. The new performance achievements will also shift the processors' market, and Gelsinger claimed that, despite the fact that system integrators such as SGI, Hewlett-Packard and NEC are currently using Intel's Itanium series of chips for traditional high-power computing purposes, the new chip will be targeted at mission-critical applications in the future. The processor's thermal design power is rated at 170 watts, yet Intel announced another stock keeping unit, that will come in a smaller thermal envelope of "only" 130 watts. Given the fact that the Tukiwlla is built on the previous-generation, 65-nanometer process node and packs two billion transistors on the same die, its thermal performance is still acceptable. Intel announced that the Tukwila chip will show up on the market in the last quarter of the year.