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Intel Rivals Will Present New Chips; Plans Highlight Pressures Reshaping Competition In Semiconductor Industry

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Author(s):	Don Clark
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Abstract (Article Summary)

The announcements, at a technical conference in Silicon Valley, include a long-awaited technology makeover for Transmeta Corp., a struggling start-up that pioneered energy-efficient chips for laptops and prodded Intel to follow suit. Centaur Technology Inc., a U.S. unit of Taiwan's Via Technologies Inc., is discussing ultra-small chips for portables. At the other end of the computing spectrum, Sun Microsystems Inc. and Fujitsu Inc. plan to describe new high-end chips for servers to outflank an Intel chip dubbed Itanium 2.

The latest chips, to be discussed this week at the Microprocessor Forum, in San Jose, Calif., attack markets outside Intel's PC stronghold. The stakes are particularly high for Transmeta, whose Crusoe chip has failed to take a big share of the portable computing market. One reason is that Intel reacted with energy-efficient chips of its own, including one called Pentium M that is part of a highly publicized set of chips dubbed Centrino.

Aiming at Intel Competing chips and their applications: COMPANY/PRODUCT: Transmeta/EfficeonMARKET: LaptopsCOMMENTS: Performs eight instructions per computing cycle COMPANY/PRODUCT: Sun/UltraSparc IVMARKET: ServersCOMMENTS: Two microprocessor "brains" per chip COMPANY/PRODUCT: Fujitsu/Sparc64 VIMARKET: ServersCOMMENTS: Two microprocessor "brains" per chip COMPANY/PRODUCT: Via Technologies/C5PMARKET: LaptopsCOMMENTS: Includes specialized encryption circuitry COMPANY/PRODUCT: AMD/OpteronMARKET: ServersCOMMENTS: Runs 64-bit and 32-bit software COMPANY/PRODUCT: AMD/Athlon 64MARKET: PCsCOMMENTS: Runs 64-bit and 32-bit software (END)

Full Text (782 words)

Competitors are stepping up their attacks on Intel Corp., unveiling plans this week for new microprocessor chips that are targeted at portable computers and large server systems.

The announcements, at a technical conference in Silicon Valley, include a long-awaited technology makeover for Transmeta Corp., a struggling start-up that pioneered energy-efficient chips for laptops and prodded Intel to follow suit. Centaur Technology Inc., a U.S. unit of Taiwan's Via Technologies Inc., is discussing ultra-small chips for portables. At the other end of the computing spectrum, Sun Microsystems Inc. and Fujitsu Inc. plan to describe new high-end chips for servers to outflank an Intel chip dubbed Itanium 2.

Though aimed at different markets, the new chips illustrate common pressures that are reshaping competition in the semiconductor industry.

Intel sells more than 80% of the chips that serve as electronic brains in personal computers and low-end servers. It has plowed profits from those products into manufacturing processes that help boost one key metric of computing performance -- chip frequency, or clock speed, which is measured in billions of cycles per second, or gigahertz.

But high clock speeds come with big costs -- excess heat and energy consumption -- that have triggered a race to use other design techniques to boost performance. Advanced Micro Devices Inc., for example, last month introduced a new PC microprocessor called Athlon 64 that tops Intel's Pentium 4 chips in some speed tests despite a lower clock speed.

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Transmeta plans to strike back this fall with Efficeon, a chip that it expects to be about 50% faster than the Crusoe and top Pentium M in performance at similar energy-consumption levels. The company uses an unusual software-based approach that translates conventional computing instructions into special internal instructions that can be executed at high speed. Efficeon also executes eight instructions per computing cycle, twice as many as Crusoe and other competing chips.

"This is Transmeta reinventing its future," said Dave Ditzel, the company's co-founder and chief technology officer.

Transmeta, which has so far been relegated to the smallest, lightest laptops, hopes to move its chips into more mainstream portables. So does Via, a maker of accessory chips for PCs that recently settled a series of suits with Intel that had clouded prospects for its smaller microprocessor business.

G. Glenn Henry, president of Via's Centaur unit, says its new C5P chip is a fraction of the size of Intel's Pentium M, while comparing favorably with low-end models on power consumption. It has one particularly unusual feature -- built-in circuitry for data encryption, which could boost the performance of software that guards against computer break-ins and other security problems.

"It's not clear, quite honestly, whether this will cause us to sell more chips," Mr. Henry said. He argues, however, that security problems have become so pressing that the enhancements are worth the risk. "Someone has to do it," he said.

Sun and Fujitsu, which make computers based on a Sun chip design called Sparc, want to head off Intel's Itanium 2 in high-end server systems. They both plan to put two microprocessor brains, dubbed cores, on their forthcoming chips, and exploit a technology called "multi-threading," in which chips execute parallel strings of instructions known as threads.

Sun, which uses Texas Instruments Inc. to manufacture its chips, plans to deliver its new UltraSparc IV chip in the first half of 2004, followed up by models offering a much bigger jump in performance in 2006. Fujitsu, which makes its own chips, is expecting its next model, called Sparc64 VI, in the second half of 2004.

Intel declined to discuss the competitors' claims in detail. "There is always competition in semiconductors, although the names of the companies can change," a company spokesman said. "We continue to invest aggressively in the technology and manufacturing that help us stay ahead of the competition."

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