

EE Times: Semi News
Startup claims breakthrough in PC clocking

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SAN JOSE, Calif. — Startup TimeLab Corp. next week is expected to roll out a technology that could revolutionize PC clocks, according to an e-mail newsletter from Semico Research Corp.

TimeLab's technology, dubbed TotalClock, consists of a line of integrated clock synthesizer chips that claim to eliminate the need for traditional analog phase lock loop (PLL) devices in PC systems. Analog PLL devices enable microprocessors to continuously adjust and run at the lowest frequency needed to accomplish a given computing task.

PLLs have some limitations, however. "It is difficult to control clock frequencies dynamically [with PLLs]," said Morry Marshall, vice president of strategic technologies at Semico (Phoenix), who has been apparently briefed about the product.

"PLLs tend to shift frequencies only in fairly large steps. Second the microprocessor must cease operations during a latent period required to shift a PLL from one frequency to another," Marshall said in the e-mail newsletter.

"The TimeLab digital clock will eliminate these problems," he said. "It promises to reduce PC power consumption dramatically, while offering much improved ease of design."

TimeLab itself also touts its technology. "The centerpiece of TimeLab's approach is a free-running ring oscillator," according to TimeLab's Web site. "Unlike analog circuits that attempt to control the oscillator's operating frequency, TimeLab measures its operating frequency and uses the measurement to control downstream digital logic."

TimeLab (Andover, Mass.), a four-year-old startup, claims to use a mainstream semiconductor process that enables "many synthesizers" to be integrated onto a single chip, producing "multiple, simultaneous, independent low-jitter clocks."

"In contrast to the constraints imposed by PLL-based designs, TimeLab synthesizers can operate at frequencies well in excess of 400-MHz with resolution as fine as 10-Hz and can be precisely adjusted to any new frequency in under a microsecond," the company said. "These capabilities permit developers to increase the value of end products by dynamically optimizing performance, power consumption and heat generation."