



SiTime Enables 5G Vision of Zero Downtime with 10 Times Higher Reliability

MEMS Clock-System-on-a-Chip Reshapes \$1 Billion Silicon Clocks Market

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SANTA CLARA, Calif.--(BUSINESS WIRE)--Aug. 4, 2020-- SiTime Corporation (NASDAQ: SITM), a market leader in MEMS timing, today announced the Cascade™ family of MEMS clock ICs for 5G, wireline telecom and datacenter infrastructure. This clock-system-on-a-chip (ClkSoC™) family, the SiT9514x, consists of [clock generators](#), [jitter cleaners](#), and [network synchronizers](#) that deliver multiple clock signals in a system. This clock family uses SiTime's recently launched third-generation MEMS resonators that deliver higher performance with lower power.

Communications and enterprise electronics have previously used clock ICs with external quartz references to integrate multiple timing functions and to distribute clock signals. SiTime's new, all-silicon clock architecture provides more integration by integrating a MEMS resonator reference inside the package. More importantly, with SiTime's proven MEMS technology, the Cascade clock-system-on-a-chip delivers up to 10 times higher reliability and resilience, enabling the 5G vision of zero downtime. Either standalone or together with SiTime's MEMS TCXOs and OCXOs, the SiT9514x delivers a complete timing solution for applications such as 5G RRUs, small cells, edge computers, switches, and routers.

"SiTime continues to expand our focus on the communications-enterprise market for many reasons. Our MEMS technology is well suited to solve the difficult timing challenges of emerging 5G infrastructure. This represents a large growth opportunity for SiTime that is complemented by production usage for many years," said Rajesh Vashist, CEO of SiTime. "Today, our Elite Platform™ Super-TCXOs™ and Emerald™ OCXO have multiple design wins in this market. We are expanding our strong foothold with the introduction of the Cascade family. Not only is this a natural next step for our timing business, but it also brings us closer to the customer as we work together to define their clock tree. In fact, Cascade devices offer a complete clock-system-on-a-chip, which allows our customers to simplify their designs and reduce time to market. As the only provider of MEMS resonators, oscillators, and clock ICs, and delivering system-level benefits to customers, SiTime continues to transform the \$8 billion timing market."

5G is expected to deliver 10 times faster speeds and 10,000 times more data, with 50 times lower latency and zero downtime. To make this vision a reality, 10 to 30 times more devices will be deployed, many of them in uncontrolled environments close to the consumer. Each of these connectivity gains is dependent on the accuracy, resilience and reliability of the timing heartbeat of the system. Silicon MEMS timing technology inherently provides better reliability and resilience which is critical to support the quality of service planned for 5G.

Benefits of SiTime's Complete Clock-System-on-a-Chip

- Integrated MEMS resonator eliminates issues with quartz such as capacitive mismatch, activity dips, susceptibility to shock, vibration, and EMI
- Four independent PLLs, with maximum flexibility to support time synchronization applications where multiple independent clock domains are required
- Up to 11 outputs with an operating frequency range of 8 kHz to 2.1 GHz, as well as a 1 PPS (pulse per second) output, for maximum frequency agility
- Programmable PLL loop bandwidth down to 1 milli-Hz for maximum filtering of wander or network

noise in IEEE 1588 and synchronous Ethernet

- Fail-safe operation in case of input clock failures through faster hitless switching between four independent inputs. In such a situation, the device automatically switches to different input clock sources with minimum phase transient at the output, allowing the downstream PLL to remain locked, and the system to continue to operate reliably
- Excellent PSNR for highest performance in the presence of power supply noise
- Minimal external filtering circuits for simpler design, space savings, and BOM reduction
- Rich programmable features and configuration options: (1) Blank ISP (in-system programmable) devices provide maximum flexibility; (2) Pre-programmed devices enable system boot up without software configuration for maximum simplicity
- EVBs and TimeMaster™ software enable users to map clock configurations and generate the scripts for software integration, which speeds development

Availability

The SiT9514x clock-system-on-a-chip family is sampling now. High volume production quantities will be available in Q4 2020. For more information, see [Jitter Cleaners / Networking Synchronizers](#) and [Clock Generators](#).

Cascade SiT9514x images: Cascade Platform [image 1](#); Cascade Platform [image 2](#)

About SiTime

SiTime Corporation is a market leader in silicon MEMS timing. Our programmable solutions offer a rich feature set that enables customers to differentiate their products with high performance, small size, low power, and high reliability. With over 1.5 billion devices shipped, SiTime is changing the timing industry.



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