



SILICON LABS

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## Silicon Labs Launches Industry's Lowest Jitter, Fully SyncE-Compliant Clock

*New Si5328 Precision Clock Multiplier and Jitter Attenuator Shrinks the Cost and Complexity of Carrier Ethernet Switches and Routers*

AUSTIN, Texas--(BUSINESS WIRE)-- [Silicon Labs](#) (NASDAQ: SLAB), a leader in high-performance, analog-intensive, mixed-signal ICs, today introduced the industry's lowest jitter, lowest power and most frequency-flexible timing solution for high-speed networking equipment based on the Synchronous Ethernet (SyncE) standard. Offering an unmatched combination of any-frequency synthesis and industry-leading jitter performance (as low as 263 femtoseconds RMS), the new Si5328 precision clock multiplier and jitter attenuator addresses the need for ultra-low jitter physical layer reference clocks in Carrier Ethernet switches and routers. Eighty percent smaller and also 80 percent more power efficient than competing SyncE clocks, the Si5328 provides a best-in-class SyncE-compliant timing solution for edge routers, multi-service switches, wireless backhaul systems, DSLAMs and GPON/GEPON optical line termination (OLT) equipment.

The telecom infrastructure market is rapidly transitioning from legacy SONET/SDH networks to higher-speed, more cost-effective Ethernet networks. A key enabling technology behind this network transition is Synchronous Ethernet, which is used to distribute accurate timing in Gigabit Ethernet (GbE), 10 GbE, 40 GbE, and 100 GbE Carrier Ethernet switches and routers. Every Carrier Ethernet switch and router requires a high-performance SyncE clock to provide wander filtering, distribute timing and provide a low-jitter Ethernet PHY reference clock. Silicon Labs has addressed this application need with the industry's lowest jitter, most frequency-flexible SyncE timing solution optimized for Ethernet PHYs ranging from GbE to 100 GbE.

The Si5328 is fully compliant with ITU-T G.8262 SyncE clock requirements including EEC Options 1 and 2. When paired with a Stratum 3 temperature-compensated crystal oscillator (TCXO), the Si5328 meets all of the jitter, wander and holdover requirements specified by the SyncE standard. With its integrated loop filter featuring selectable loop bandwidths (0.1 Hz and 1 to 10 Hz), the Si5328 can be designed into any networking system that must comply with SyncE specifications. This integration eliminates the need for expensive discrete timing card phase-locked loops (PLLs) in some systems and provides manufacturers the assurance that their networking products can be deployed worldwide by their end customers.

Leveraging Silicon Labs' patented DSPLL<sup>®</sup> technology, the Si5328 SyncE clock can generate any output frequency ranging from 8 kHz to 808 MHz and from any input frequency from 8 kHz to 710 MHz. This unique frequency-flexible any-rate capability enables networking system designers to synchronize to and generate virtually any legacy telecom or SyncE frequency, simplifying system designs from GbE to 100 GbE. The Si5328 can be digitally reconfigured through I<sup>2</sup>C or SPI interfaces without the need for costly bill of materials (BOM) changes.

The Si5328 clock's high level of single-chip integration greatly simplifies printed circuit board (PCB) design. Its DSPLL architecture eliminates the need for external crystal and loop filter components, reducing PCB area while also maximizing immunity to board-level noise. Selectable output signal formats (LVPECL, LVDS, CML and CMOS) ease interfacing with popular Ethernet transceivers and eliminate expensive level shifters and other filtering components. Powered by a single 2.5 or 3.3 V supply, the Si5328 operates without the need for multiple power supplies and discrete filtering required by competing SyncE timing solutions.

"As today's telecom infrastructure rapidly migrates from legacy standards to SyncE, equipment manufacturers require fully SyncE-compliant timing solutions that not only offer low jitter performance but also reduce design complexity and power consumption," said Mike Petrowski, vice president and general manager of Silicon Labs' timing products. "Silicon Labs' new Si5328 clock multiplier offers the most advanced SyncE timing solution available, giving designers an unparalleled margin in jitter performance, BOM cost, footprint and energy efficiency."

### Pricing and Availability

Production quantities of Silicon Labs' SyncE Si5328 clocks are available now in a compact 6 mm x 6 mm QFN package, as well as in two speed grades. The Si5328C-C-GM supports clock outputs up to 346 MHz and is priced at \$7.50 (USD) in 10,000-unit quantities. The Si5328B-C-GM supports clock outputs up to 808 MHz and is priced at \$9.38 (USD) in 10,000-unit quantities. Silicon Labs offers an easy-to-use evaluation platform to accelerate SyncE application development. The Si5328-EVB evaluation board is priced at \$250 (USD MSRP).

For more information about Silicon Labs' Si5328 SyncE clock multiplier and jitter attenuator and to order samples and

evaluation boards, visit [www.silabs.com/timing](http://www.silabs.com/timing).

## **About Silicon Labs' Timing IC Portfolio**

Silicon Labs offers the industry's broadest "one-stop-shop" portfolio of timing ICs including programmable XO/VCXOs, single-die MEMS oscillators based on CMEMS<sup>®</sup> technology, frequency-flexible clock generators, jitter-attenuating clocks, PCIe clocks, buffers and physical layer timing devices. Leveraging Silicon Labs' patented DSPLL and MultiSynth technologies, these timing ICs eliminate the need for many expensive discrete components while improving performance, minimizing board space and simplifying designs. To help developers get to market faster, Silicon Labs offers easy-to-use web utilities that allow custom-configuration of oscillators and clock generators. Timing IC samples ship in less than two weeks, eliminating long lead times associated with custom devices.

## **Silicon Labs**

Silicon Labs is an industry leader in the innovation of high-performance, analog-intensive, mixed-signal ICs. Developed by a world-class engineering team with unsurpassed expertise in mixed-signal design, Silicon Labs' diverse portfolio of patented semiconductor solutions offers customers significant advantages in performance, size and power consumption. For more information about Silicon Labs, please visit [www.silabs.com](http://www.silabs.com).

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Silicon Labs  
Dale Weisman, +1-512-532-5871  
[dale.weisman@silabs.com](mailto:dale.weisman@silabs.com)

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