

Product Preview

DUAL CHANNEL UNIVERSAL CLOCK GENERATOR



The ZL30236 Dual Channel Universal Clock Generator, part of Microsemi's ClockCenter platform of Free Run Clock devices, delivers industry-leading synchronization performance for a range of free-run applications. The free-run synchronization solution allows designers to replace multiple, costly components with a highly integrated, single-chip solution.

The ZL30236 device generates up to 12 clocks from a single crystal, allowing designers to replace numerous oscillators traditionally used to provide timing for various components with one chip.

Single-Chip Solution for Complex, High-Speed Applications

The industry's highest performance, most integrated timing solution for free run applications.

Reduces design complexity and cost

- Operates from a single crystal resonator, clock oscillator or voltage controlled oscillator to help reduce component count

Highest Performance Solution Available

- Two independently programmable clock synthesizers generate any clock rate from 1 kHz to 720 MHz
- Precision synthesizers generate clocks with jitter below 0.7 ps RMS for 10G PHYs
- Eight LVPECL outputs with maximum rate of 720 MHz
- Four LVCMOS outputs with maximum rate of 160 MHz

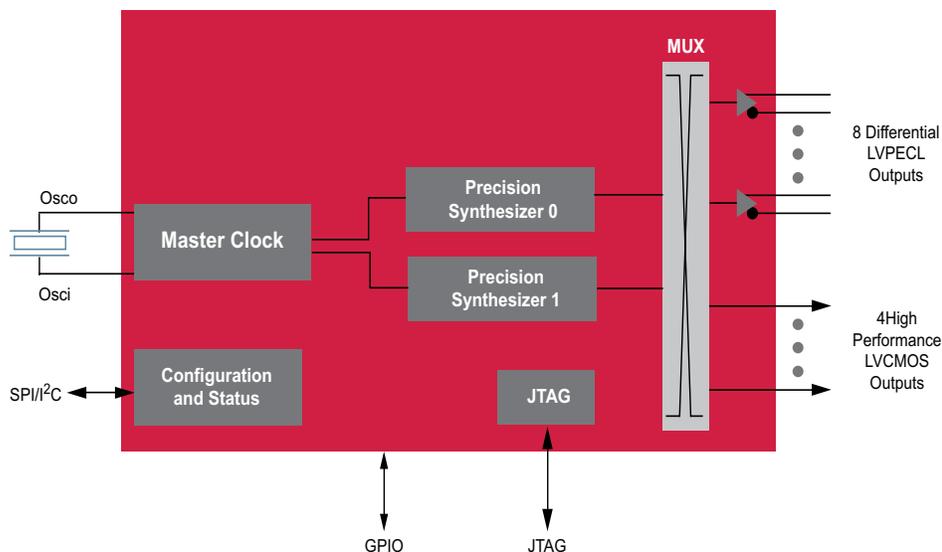
Fully Programmable

- Supports programmable frequency offsets for clock margining or for use as a digitally controlled oscillator
- Dynamically configurable via SPI/I2C interface

Applications

- Timing for network processor units (NPUs), field programmable gate arrays (FPGAs), Ethernet switches and PCIe switches
- Timing for 10G CDRs, Rapid-IO, PCIe, Serial Mill, Star Fabric, Fiber Channel, XAUI
- Processor, processor bus, SDRAM and DDR clocks

ZL30236 Block Diagram



Availability and Support

The ZL30236 Dual Channel Universal Clock Generator is in volume production. To learn more about Microsemi's new ClockCenter platform, visit http://www.zarlink.com/zarlink/hs/timing_Clock-Center.htm. Full information, including complete data sheets and design manuals, is available to registered MyZarlink customers. To register for a MyZarlink account, visit <http://www.zarlink.com/zarlink/hs/login.htm>.

ZL30236

Integrated Device Replaces Multiple Oscillators with Single Chip

The ClockCenter ZL30236 Dual Channel Universal Clock Generator helps lower bill of material costs, reduces board space requirements, simplifies design complexity and improves performance reliability by replacing multiple external components traditionally used to time processors, memory chips, PHY chips and more with a fully integrated single-chip solution.

The single chip device integrates two independent synthesizers and generates up to 12 high performance clocks. Independent synthesizers enable generation of frequencies which are completely unrelated from one another. Eight low jitter differential LVPECL clocks can be programmed to any frequency from 1 kHz to 720 MHz, and four high performance LVCMOS clocks can be programmed to any frequency from 1 kHz to 160 MHz.

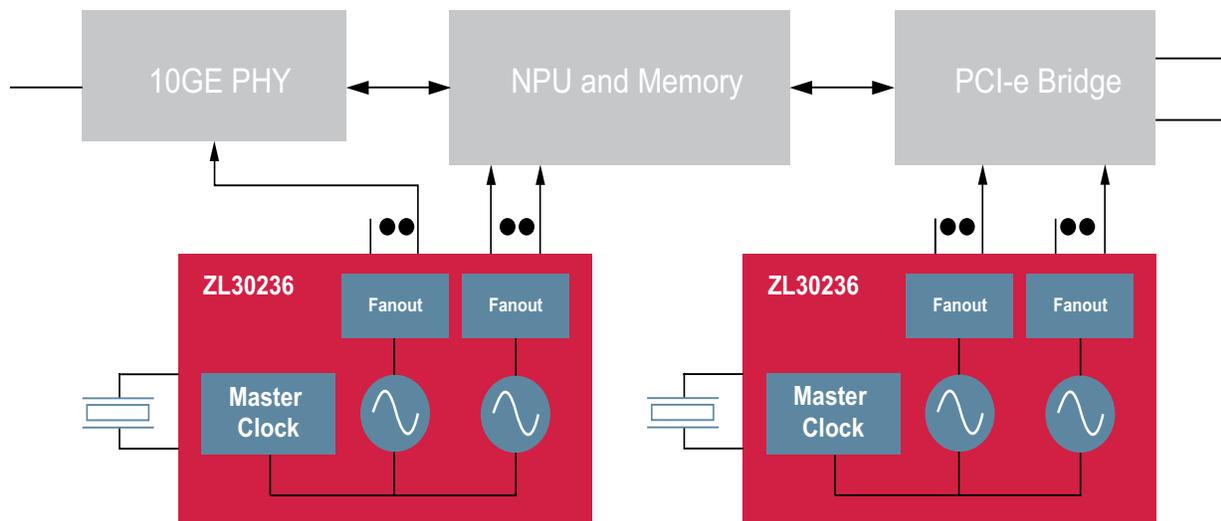
The application diagram below illustrates how the ClockCenter ZL30236 can be implemented as a single chip solution to supply all the clocks necessary for different components on a PCB, replacing multiple discrete oscillators.

In this application, two ZL30236 devices are implemented to supply timing to a 10GE PHY device, network processor, memory and a PCI-e Bridge. The 10GE PHY clock is generated from one synthesizer while

the other synthesizer in combination with the device's integrated fanout capability and flexible clock programming generate clocks for the network processor and memory. A second ZL30236 is used to supply clocks to the PCI-e Bridge.

The ZL30236 silicon solution provides additional benefits compared to oscillators, such as a frequency margining capability which simplifies and speeds system validation. Traditional designs require the frequency ranges for onboard clock oscillators to be tested by populating oscillators with known frequency offsets or substituting an external programmable clock. This is a time consuming task requiring special set-ups.

The ClockCenter ZL30236's programmable clock frequencies can be digitally adjusted under software control to perform this validation task much faster. Other ZL30236 benefits include improved reliability by replacing multiple oscillators which have inferior failure in time performance compared to silicon. A single frequency source with fine programmable control over every frequency makes crosstalk and board noise issues easier to manage compared to multiple discrete oscillators. The integrated fanout capability reduces cost and simplifies jitter budgeting. The overall timing solution reduces cost and simplifies sourcing by replacing multiple discrete oscillators with a single integrated chip.



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