ZL30237

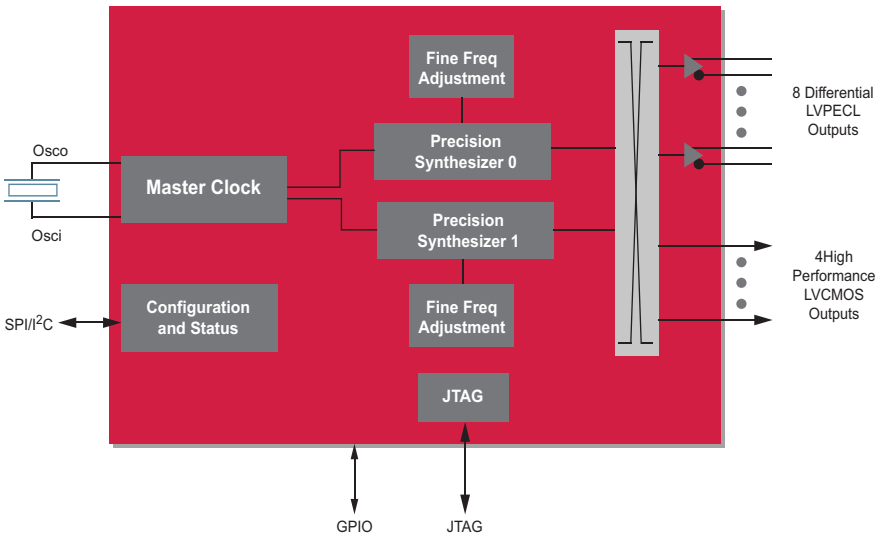
Product Preview

DUAL CHANNEL UNIVERSAL NCO CLOCK GENERATOR

The ZL30237 Dual Channel Universal NCO Clock Generator, part of Microsemi® ClockCenter platform of Free Run Clock devices, delivers industry-leading synchronization performance for a range of applications. The free-run synchronization solution allows designers to replace multiple, costly components with a highly integrated, single-chip solution.

The ZL30237 integrates two independent numerically controlled oscillators (NCOs). Both NCOs are locked to the external crystal or oscillator and each can be used as a free running clock generator or be used to build a phase-locked loop (PLL) where the phase detector and loop filter are provided externally. The 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.

ZL30237 Block Diagram



Applications

- Replaces VCXOs when building a PLL along with a phase detector and loop filter
- SONET/SDH, Ethernet, Fibre Channel, OTN, video and audio 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 MII, Star Fabric, XAUI
- Processor, processor bus, SDRAM and DDR clocks

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

NCO Capability

- Dual channel device replaces two VCXOs/NCOs
- Frequency of each synthesizer can be fine tuned up to +/- 5% by corresponding fine frequency adjustment circuit with resolution of 0.24 ppb
- Fine frequency adjustment circuit dynamically configurable via SPI/12C interface

Fully Programmable

- Supports programmable frequency offsets for clock margining or for use as a digitally controlled oscillator

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Integrated Device Replaces Multiple VCXOs with Single Chip

The ClockCenter ZL30237 Dual Channel Universal NCO 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 in timing designs with a fully integrated single-chip solution.

The single chip device integrates two independent numerically controlled oscillators (NCOs). Both can be used as a free running clock generator or be used to build a phase locked loop (PLL) where the phase detector and loop filter are provided externally.

The application diagrams below illustrate how the ClockCenter ZL30237 can be used to replace one or more VCXOs to recover and jitter filter clocks.

The ZL30237 provides a more flexible, integrated solution than simple VCXOs (Figure 1). In a typical FPGA based 10G OTN line card (Figure 2), the ZL30237 can be used to replace two NCOs or VCXOs, resulting in board space and power savings.

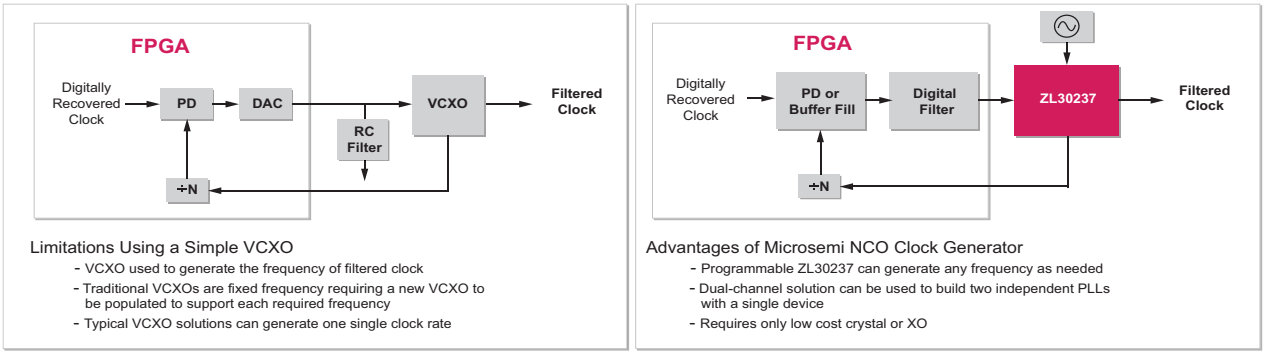

Figure 1: Methods to Recover and Jitter Filter Clocks

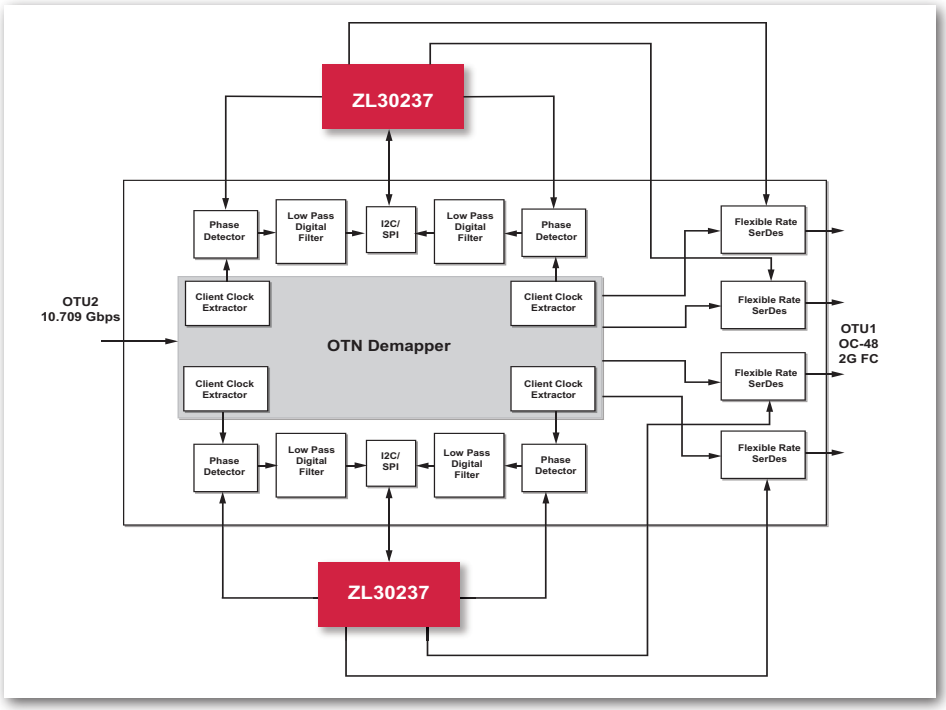

Figure 2: FPGA Based 10G OTN Using L30237

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