# ZL30250 and ZL30251
Any-to-Any Frequency, High-Performance Clock Multipliers and Synthesizers

The ZL30250 and ZL30251 any-to-any clock multiplier and frequency synthesizer devices simplify board design by synthesizing frequencies from a reference input clock or a low-cost crystal, providing up to 6 low-jitter output clocks from <1Hz to 1035 MHz. With a small package and best-in-class jitter performance, these devices target clock synthesis and frequency conversion applications with tough jitter budgets and tight board real estate restrictions.

The ZL30250 and ZL30251 devices improve design reliability, reduce bill of materials (BOM) cost and simplify design by replacing multiple crystals and peripheral timing components. When used together with Microsemi Fanout Buffers, the complete timing solution improves board performance.
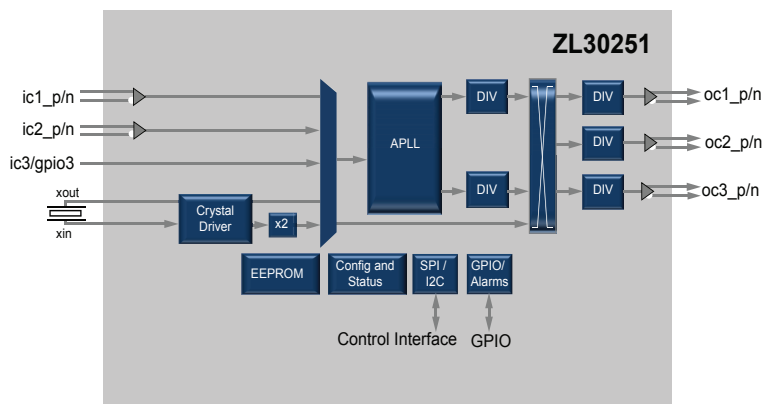
Applications

- Clocks for NPUs, FPGAs, CDRs, high-speed ADCs and DACs, PCIe interface devices, Ethernet switches and PHYs.
- Timing generation for optical, storage, networking, and broadcast video applications.
- OTN, SONET/SDH, WDM, and wireless applications.

Availability and Support

- Microsemi Clock Management products are in volume production. To learn more about Microsemi's clock products, visit www.microsemi.com/products/timing-and-synchronization/timing-and-synchronization. Full information, including complete data sheets and design manuals, is available to registered MyMicrosemi customers.To register for a MyMicrosemi account, visit www.microsemi.com/create-an-account.

Key Features

Industry-Leading Output Jitter: 160fs

Any-to-Any Frequency Synthesis

- Replaces multiple high performance crystals and crystal oscillators

Any-to-Any Frequency Conversion

- Any input frequency 10 MHz to 1.25 GHz
- Any output frequency <1 Hz to 1 GHz

High-Precision Numerically Controlled Oscillator

- Frequency resolution better than 0.01 ppb

Spread-Spectrum Modulation Mode

- Meets peripheral component interconnect express (PCIe) requirements

Pin- Selectable Self Configuration at Power-up

- User or factory programmable

Easy-to-Use Evaluation Software

- Simple, intuitive Windows-based graphical user interface

Key Benefits

Reduces BOM Cost and Board Space

- Replaces multiple crystal oscillators and/or high-cost VCXOs
- Small package: 5x5 mm

Increases Design Efficiency

- Highly configurable outputs and multiple pin-compatible variants
- 4 custom configurations easily selected with external hardware pins

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Any-to-Any Frequency, High-Performance Clock Multipliers and Synthesizers

Microsemi Any-to-Any Clock Multiplier and Frequency Synthesizers can be implemented as a solution to supply all of the clocks necessary for all the components on a PCB, replacing multiple discrete oscillators. These application examples also use Microsemi fanout buffers to supply additional clock signals as needed. Microsemi has designed its fanout buffers to work synergistically with the ZL30250 and ZL30251, minimizing the impact to the jitter budget to serve high-performance designs.

For server applications, the ZL30250 and ZL30251 generate PCIe-compliant clocks and are field-configurable to use or not use spread-spectrum modulation for EMI reduction as needed for the application. Using the ZL30250/1 on line cards reduce BOM and

space requirements by synchronizing high speed interfaces higher than 10G.

For enterprise switch applications, pin-selectable self-configuration at powerup and highly configurable outputs allow the ZL30251 to generate additional clocks needed by the CPU and switch ICs. The ability of the ZL30251 and ZL40219 fanout buffer to generate all required clocks including those for 10G PHYs simplifies the design process and improves reliability.

For base station applications, ZL30250/1 supplies the asynchronous DSP clocks while the ZL30253 Any-to-Any Clock Multiplier and Jitter Attenuator generates the network-synchronized clocks. ZL40219 fanout buffers create additional low-jitter copies of the clocks.
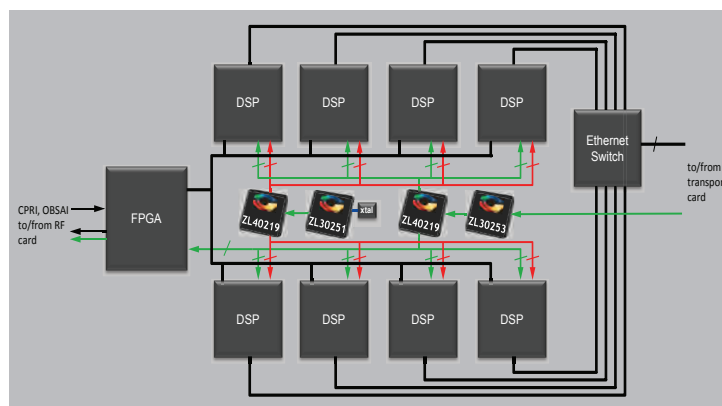
Server using PCI Express
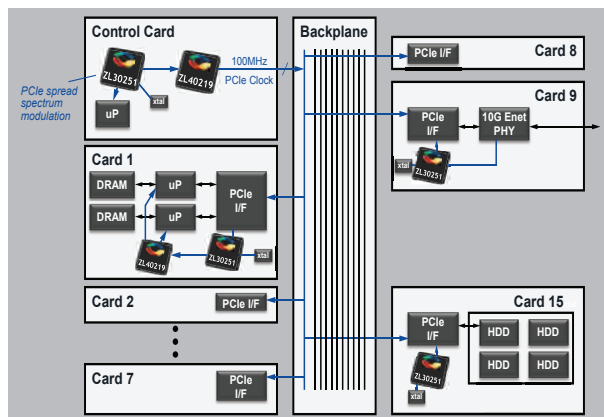
Enterprise Switch
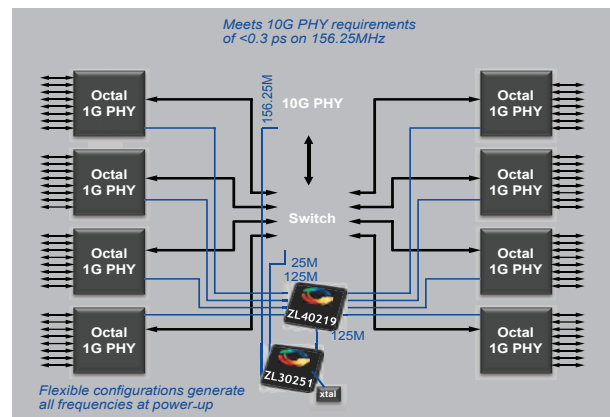
Base Station (Macro and Small Cells)

Microsemi Corporation (Nasdaq: MSCC) offers a comprehensive portfolio of semiconductor and system solutions for communications, defense & security, aerospace and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions, setting the world's standard for time; voice processing devices; RF solutions; discrete components; security technologies and scalable anti-tamper products; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Microsemi is headquartered in Aliso Viejo, Calif., and has approximately 3,400 employees globally. Learn more at www.microsemi.com.