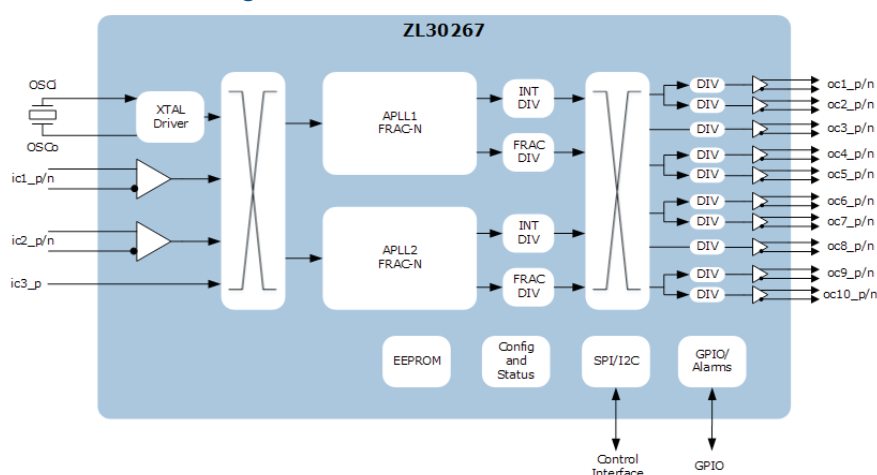# miClockSynth™ ZL30260–ZL30267 Family
High-Performance Frequency Synthesizers and Rate Converters

The miClockSynth ZL30260–ZL30267 family of high-performance, any-rate frequency converter synthesizers simplifies board design by generating ultra-low-jitter clock signals from a single crystal, crystal oscillator, or reference clock while generating additional independent frequency families.

With four independent frequency families on one chip that have best-in-class jitter performance and up to two fractional-N APLLs with both a fractional and integer divider, the ZL30260–ZL30267 family creates a complete clock-tree, improving design reliability, reducing bill of materials (BOM) cost, and simplifying the design by replacing multiple crystals and peripheral timing components.

ZL30267 Block Diagram

Key Features

Best-in-Class Jitter Performance
- Ultra-low output jitter: 170 fs RMS

Four Independent Frequency Families
- Replaces multiple high-performance crystals and crystal oscillators
- Each Frac-N APLL has a fractional and integer divider

Any-Rate Frequency Conversion
- Any input frequency: 10 MHz to 1.25 GHz
- Any output frequency: 1 Hz to 1 GHz

High-Precision Numerically Controlled Oscillator
- Steer output frequency per APLL or Frac-N divider
- Better than 0.01 ppb resolution

Configurable Output Format
- Native LVDS, LVPECL, HCSL, 2x CMOS, or HSTL per output

Spread-Spectrum Modulation Mode
- Meets peripheral component interconnect express (PCIe) standard requirements

Flexible Power Supply Banks
- Outputs are grouped into six power supply banks to allow for 1.5 V to 3.3 V of signal swing on a CMOS or HSTL, enabling glueless interfacing with neighboring components

Factory-Preprogrammed Devices
- miClockDesigner's™ web tool creates devices to power-up with preset clocks while reducing time-to-market, simplifying inventory, and reducing BOM costs

Key Benefits

Reduces BOM Cost and Board Space
- Complete clock-tree solution replaces multiple crystal oscillators and high-cost VCXOs

Increases Design Efficiency
- Highly configurable outputs and multiple pin-compatible variants
- Up to eight custom configurations per device or part number selectable with external hardware pins

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, 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.

miClockSynth™ ZL30260–ZL30267 Family
High-Performance Frequency Synthesizers and Rate Converters

Microsemi's miClockSynth ZL30260–ZL30267 devices can create a complete clock tree, replacing a number of multipliers, synthesizers, and oscillators on the board, improving design reliability while reducing BOM costs and simplifying design.

With the devices' ultra-low output jitter of 170 fs RMS, they also offer any-rate frequency conversion—with any input frequency ranging from 10 MHz to 1.2 GHz to any output frequency from 1 Hz up to 1 GHz across four different frequency families.

The miClockSynth ZL30260–ZL30267 devices also feature an intuitive graphical user interface (GUI) and the ability to create factory pre-programmed devices with ease using Microsemi's web tool, miClockDesigner. These pre-programmed devices—which have pin-selectable configurations at power-up—ensure clock availability and proper system bring-up for all applications.

For electromagnetic interference (EMI)-sensitive applications (such as PCIe Gen 3 and Gen 4 in datacenters, servers, and storage) the miClockSynth ZL30260–ZL30267 devices can perform SSM to spread the energy of the signal and thereby reduce the application's EMI.

Datacenter Ethernet Switch/Router Application
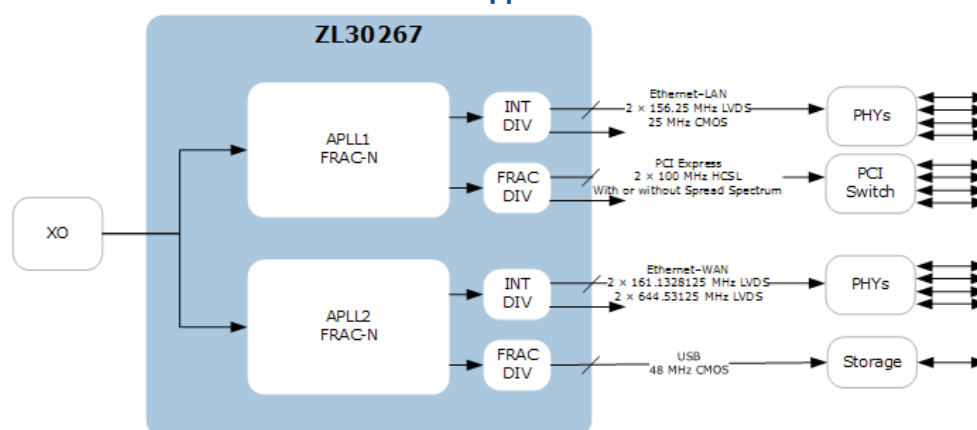
Selector Guide

Part Number	PLLs	Memory	Outputs	Package
ZL30260	1-APLL	External EEPROM/internal ROM	6	8 mm × 8 mm QFN
ZL30261	1-APLL	Internal EEPROM	6	8 mm × 8 mm QFN
ZL30262	1-APLL	External EEPROM/internal ROM	10	8 mm × 8 mm QFN
ZL30263	1-APLL	Internal EEPROM	10	8 mm × 8 mm QFN
ZL30264	2-APLL	External EEPROM/internal ROM	6	8 mm × 8 mm QFN
ZL30265	2-APLL	Internal EEPROM	6	8 mm × 8 mm QFN
ZL30266	2-APLL	External EEPROM/internal ROM	10	8 mm × 8 mm QFN
ZL30267	2-APLL	Internal EEPROM	10	8 mm × 8 mm QFN

Microsemi Corporation (Nasdaq: MSCC) offers a comprehensive portfolio of semiconductor and system solutions for aerospace & defense, communications, data center 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; enterprise storage and communication solutions, security technologies and scalable anti-tamper products; Ethernet solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Microsemi is headquartered in Aliso Viejo, California and has approximately 4,800 employees globally. Learn more at www.microsemi.com.