# Clock Synthesis Products

Today's modern systems often require the generation and distribution of several clock frequencies to multiple loads. Clock synthesis devices from Microsemi® help lower bill of material costs, reduce board space, simplify design and improve performance and reliability by replacing multiple external components traditionally used to time processors, memory chips, PHY chips and more with a fully integrated, single chip solution.
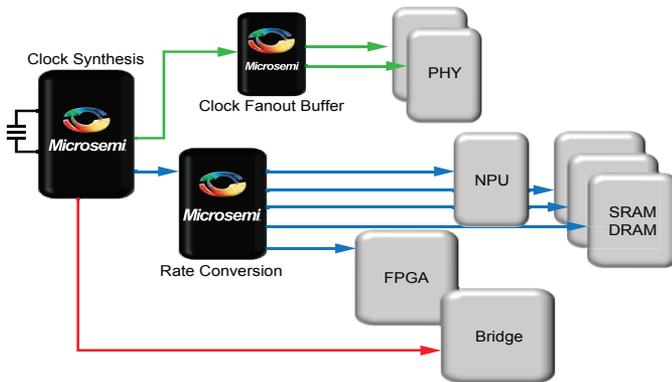
Applications

- Timing for NPUs, FPGAs, Ethernet switches and PCIe switches
- Timing for 10 Gigabit CDRs, Rapid-IO, PCIe, Serial MII, Star Fabric, Fibre Channel, XAUI
- Processor, processor bus, SDRAM and DDR clocks
- Timing generation for enterprise routers and switches, wireless base stations, servers, optical, storage, networking, and broadcast video applications

Availability and Support

Microsemi Clock Management products are in volume production. To learn more about Microsemi's clock products, visit www.microsemi.com/timing-and-synchronization/clock-synthesis. 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.

Clock Synthesis Solutions Address Key Customer Pains

- Dependence on crystal oscillators to design and test timing clock trees reduce board reliability and increase cost
- Discrete components increase BOM cost and lengthen time to market
- Expensive oscillators are required to achieve low jitter

High Integration

- Up to 4 independent programmable synthesizers replace competing multi-chip single channel solutions
- Integrated fanout buffers with up to 20 output clock signals in two frequency families

Industry Leading Ultra-low Jitter

- Ultra - low 160 fs jitter on all outputs provide spec-compliant timing for high-performance system components and multi-gigabit interfaces

Wide Frequency Range

- Output clock frequencies from <1 Hz to 1035 MHz
- Fractional synthesizers support any-to-any clock synthesis

Highly Programmable Outputs

- Control of each output clock's signal format, voltage, drive strength, frequency divider and phase
- Replace external support components such as fanout buffers and format converters

Custom Configuration

- Clock signals available at power-up with OTP or integrated EEPROM; easily configurable with hardware pins

Clock Synthesis Products

Featured Products
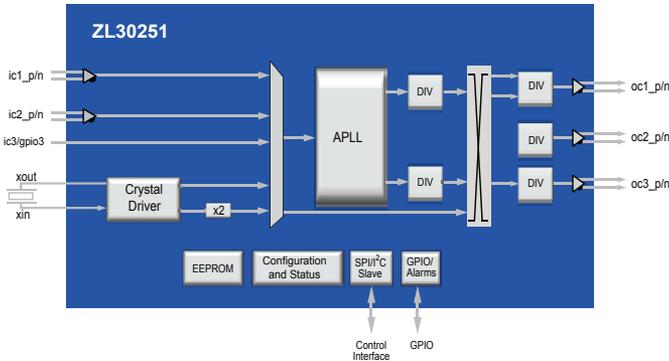
ZL30250 and ZL30251

- Industry leading low jitter provides spec-compliant timing for multi-gigabit interfaces
  - Any-to-any frequency synthesis / conversion generates any clock rate from <1Hz to 1035 MHz with jitter as low as 160 fs
- Spread-spectrum
  - +/- 0.5% meets low EMI specifications
- Accurate numerically controlled oscillator
  - Replaces expensive high end analog VCXOs
- Pin-selectable custom configuration
  - Easy implementation; up to 4 configurations
- Small 5mm x 5mm QFN
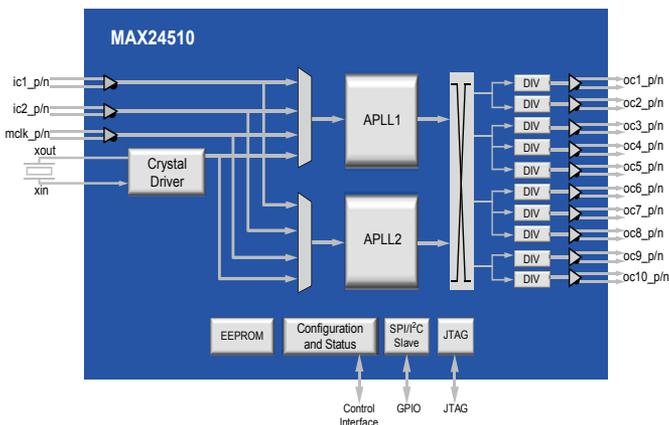
MAX24405/10 and MAX24505/10

- Ultra-low jitter output clocks provide spec-compliant timing for multi-gigabit interfaces
  - Any-to-any frequency synthesis / conversion from 10 MHz to 750 MHz with ultra – low 180 fs RMS jitter
- On-chip fanout buffers with flexible output configuration
  - Up to 20 output clock signals in two frequency families
  - Control over each output clock's signal format, voltage and drive strength
  - Frequency divider and phase adjustment per output
- 10mm x 10mm CSBGA
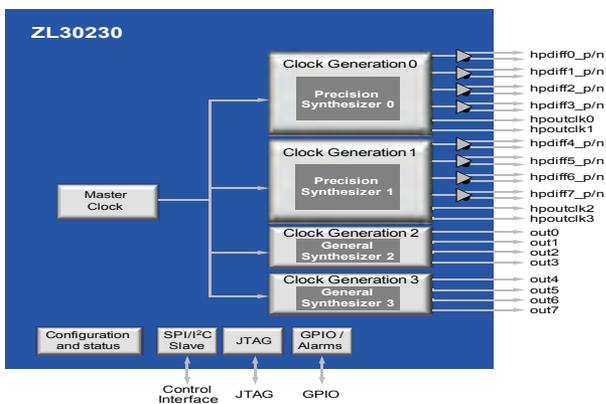
ZL30230, ZL30236 and ZL30237

- High channel integration with low output jitter replace competing multi-chip solutions
  - Up to 4 independent synthesizers generate any clock rate from 1 kHz to 720 MHz with jitter below 0.7 ps RMS
- On-chip fanout buffers reduce component count and board cost
  - 8 LVPECL outputs
  - 8 outputs configurable as LVCMOS or LVDS/LVPECL/HCSL
- 11x11mm BGA

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.

CSP-3-15