IDT offers the broadest and deepest silicon timing portfolio in the industry. In addition to our wide selection of buffers and clock synthesizer and silicon oscillator products, we deliver leading-edge system timing solutions to resolve timing challenges in virtually any applications. With proven expertise spanning more than twenty-five years in both analog and digital timing, our portfolio features the lowest phase noise and highest performance advanced timing technology.

**Real-Time Clocks**

IDT’s real-time clock ICs are ultra-low-power clock/diode devices with programmable time-of-day alarms and programmable square-wave outputs. High noise immunity, low current consumption, 12/24 hour operation mode, leap year auto correction, and programmable square wave output make them ideal for a wide range of design applications.

Our RTCs count seconds, minutes, hours, day, date, month, and year with leap-year compensation add-up to 2100 and feature:
- Normal and fast-mode I2C interfaces
- Two time-of-day alarms
- Oscillator stop flag
- Operating voltage range from 1.8 – 5.5V

To learn more, visit [idt.com/appclocks](http://idt.com/appclocks).

**Reference Designs**

Idt’s reference designs provide the best technology for FPGAs, processors, and targeted applications.

To learn more, visit [idt.com/refdesigns](http://idt.com/refdesigns).

**Clock Tree Design and Services**

Clock tree design can be a complex task with many considerations that can overwhelm designers unfamiliar with clock trees and the associated language of timing. While there are some automated tools available, they simply cannot address many complexities of advanced requirements like phase jitter and spread spectrum.

As the market leader in silicon timing, IDT is the only one-stop-shop for timing solutions with experts and products from full-featured system solutions to simple clock building-block devices. Our in-house experts can assist you in building a new clock tree from the ground up or evaluate and improve an existing clock tree design.

To learn more, visit [idt.com/clocktree](http://idt.com/clocktree).

**To request samples, download documentation or learn more visit:** [idt.com/timing](http://idt.com/timing)
Timing Solutions Overview

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Application-Specific Clocks
Meeting Industry Standards
IDT’s wide variety of application-specific clocks give your customers targeted solutions to simplify their design process. These devices are optimized for specific requirements to perform better and are easier to use in target applications than general purpose clocking parts. We offer a full portfolio of clock generation and distribution products designed specifically for:

- Network Synchronization, IEEE 1588, Synchronous Ethernet
- PCI Express
- RF and JESD204B
- Spread Spectrum clocks
- Processor clocks

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Timing Commander™ Software
IDT’s Timing Commander™ is a simple configuration tool for complex timing solutions. This innovative Windows™-based software platform enables system design engineers to configure, program, and monitor sophisticated timing devices with an intuitive and flexible GUI. Timing Commander empowers your customers to expedite their development cycles and optimize the configuration of your industry-leading clocking solutions.

Help your customers get command of their timing tree and easily:
- Configure, program, and monitor sophisticated timing devices
- Create phase noise plots
- Generate schematic symbols and termination circuits
- Calculate estimated power consumption

To learn more, visit idt.com/timingcommander

Reference Designs
Shorthand and simplify your design cycle and speed time to market with trusted reference design solutions from the industry’s leading timing experts. IDT’s reference design library leverages our best technology for FPGAs, processors, and targeted applications.

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Industry's most comprehensive portfolio of ultra-flexible, programmable timing devices

IDT's clock distribution products are used to condition, manipulate and distribute clock signals within a system, with or without the use of a PLL. These devices are well-suited for most applications where the input signal is of good quality and the goal is to buffer, fanout, divide or multiplex the input signal. A single-output clock buffer is also useful for translating a clock from one signaling standard to another, such as LVCMOS-in to LVPECL-out.

• Clock dividers and fanout buffers
• Zero-delay buffers
• Multiplexers and fanout multiplexers

Our rich portfolio of clock buffer, distribution and multiplexer solutions meets your needs for virtually any application. With the industry’s largest portfolio of clock distribution devices supporting differential signals, IDT products cover all of the standard I/O levels – LVDS, LVPECL, HCSL, LVCMOS, CML, HSTL, or SSTL.

Jitter Attenuators

IDT's jitter attenuators remove unwanted noise from one or more input clock signals. Integrating a jitter attenuator and frequency translator simplifies the circuit and minimizes the BOM for your designs.

Universal frequency translator (UFT) family offers:
• Translations from virtually any input frequency to any output frequency
• Eight independently programmable clocking outputs
• Flexibility to generate eight different frequencies in up to four frequency domains

To learn more, visit idt.com/ja

Oscillators

Quartz Crystal Oscillator (XO), Crystal Clock Oscillators, and Low Power Oscillator Circuits

IDT offers XO and FemtoClock® NG programmable oscillator ICs to meet your needs in virtually any application.

• High-performance, low-jitter XO and X2 crystal oscillators
• Various frequency, performance level, output, package, and temp options
• AEC-Q200 Automotive-grade XA family
• Programmable FemtoClock NG devices for advanced system designers
  • High-performance flexibility in standard I/O footprints
  • <0.5 ps RMS jitter with frequency options from 15.48 – 1300 MHz

To learn more, visit idt.com/xo
Industry’s most comprehensive portfolio of ultra-flexible programmable timing devices

Widely recognized as the industry’s most comprehensive portfolio of ultra-flexible, programmable timing devices, IDT clock synthesizers are all PLL clock-based products that generate one or more clock signals within an application. Our clock generators and frequency synthesizers can generate different output frequencies from a common input frequency. Our clock generators and frequency synthesizers can generate different output frequencies from a common input frequency, satisfying complex clocking system requirement needs.

- General purpose solutions
- Low and ultra-low jitter families
- Extreme performance products
- Flexible programmable clocks

IDT’s products produce clock output frequencies within strict tolerances for the application they are clocking and allow for frequency translation—either multiplication or division. We also offer solutions for single-ended and differential clock outputs, as well as devices with an external feedback path for more precise control.

To learn more, visit idt.com/clockgen

IDT clock distribution products are used to condition, manipulate and distribute clock signals within a system, with or without the use of a PLL. These devices are well-suited for most applications where the input signal is of good quality and the goal is to buffer, fanout, divide, or multiplex the input signal. A single-output clock buffer is also useful for translating a clock from one signaling standard to another, such as LVCMOS in to UPDCLCl.

- Clock dividers and fanout buffers
- Zero-delay buffers
- Multiplexers and fanout multiplexers

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To learn more, visit idt.com/buffers

Universal frequency translator (UFT) family offers:

- Translators from virtually any input frequency to any output frequency
- Eight independently programmable clocking outputs
- Flexibility to generate eight different frequencies in up to four frequency families

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IDT offers XO’s and FemtoClock® NG programmable oscillator ICs to meet your needs in virtually any application.

- High-performance, low-jitter XL and XU crystal oscillators
  - Various frequency, performance level, output, package, and temp options
  - AEC-Q200 Automotive-grade XA family
- Programmable FemtoClock NG devices for advanced system designers
  - High-performance flexibility in standard XO footprints
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Jitter Attenuators

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Low Power

Highly Programmable

Clock Generators

Clock Distribution

Oscillators
Clock Generators

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With the industry’s largest portfolio of clock distribution devices supporting differential signals, IDT products cover all of the standard I/O levels – LVDS, UTPG4L, HCSL, LVCMOS, CM, IHSI, or SSTL.

IDT ADVANTAGES:

- Broad portfolio – Industry-leading coverage for all market segments
- Strong performance – Best in class combination of skew (<35 ps), jitter (<50 fs) and power (30 mA for 4 outputs)
- Flexible designs – Pin-selectable output type and I²C programmable families
- Robust – Available in commercial and industrial temperature ranges
- Space-saving devices – Small packages and integrated input termination networks for differential signals

To learn more, visit idt.com/buffers

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