

Product Preview

Single Channel 10GbE Line Card PLL with Ultra-Low Jitter



The ZL30151 is a high performance line card device in a tiny 5x5 mm package. The device accepts up to 3 input references and generates up to 3 output clocks with ultra-low jitter performance of 250 fs RMS. An integrated digital phase locked loop (DPLL) with programmable loop bandwidth down to 1 Hz provides hitless reference switching, holdover and jitter filtering. An integrated fractional-N analog PLL (APLL) generates ultra-low jitter output clocks programmable to any frequency between <1 Hz to 650 MHz.

With the ZL30151's leading edge performance and flexibility in a relatively small package it's ideal as a line card timing IC for a wide variety of equipment types.

Key Features

250 fs Industry Leading Jitter Performance

- Ideal for driving 10GbE and greater PHYs

Any-to-Any Frequency Synthesis

- Any output frequency from <1 Hz to 650 MHz

Fully-Featured DPLL for SyncE line Card Timing IC Low-Bandwidth DPLL

- Programmable bandwidth, 1 Hz to 500 Hz
- Freerun or holdover on loss of all inputs
- Hitless Reference Switching
- High-resolution holdover averaging
- Digitally controlled phase adjustment

Pin-Selectable Self Configuration at Power-up

- User or factory programmable

Easy to use Evaluation Software

- Simple, intuitive Windows-based graphical user interface

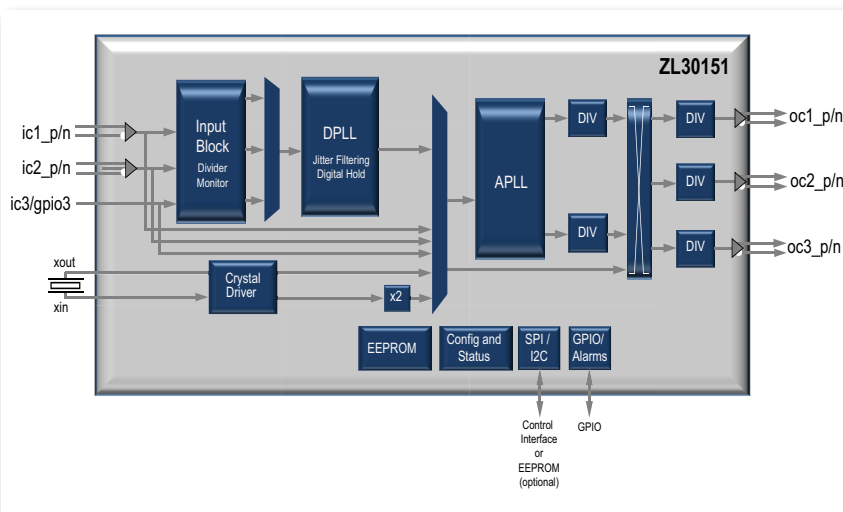
Key Benefits

Ideal for Line Card Applications

- Accepts up to 3 input references and generates up to 3 output clocks with ultra-low jitter performance of only 250 fs RMS
- Small package 5x5 mm

Increases Design Efficiency

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



Applications

- Telecom line cards for Synchronous Ethernet, SONET/SDH, PDH, Fibre Channel
- Broadcast Video
- Frequency conversion and jitter attenuation in a wide variety of equipment types

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.

ZL30151 Applications

Microsemi's ZL30151 Single Channel 10GbE Line Card PLL is ideally suited to Synchronous Ethernet line cards. The tiny 5x5 mm device meets the jitter performance requirements of the industry's most stringent PHY devices up to 100 GE. The ZL30151 accepts up to 3 input references and provides up to 3 ultra-low jitter output clocks. Where additional output clocks are required Microsemi has designed its clock distribution fan-out buffers to work synergistically with the ZL30151 to maintain excellent jitter performance and remain within the jitter budget.

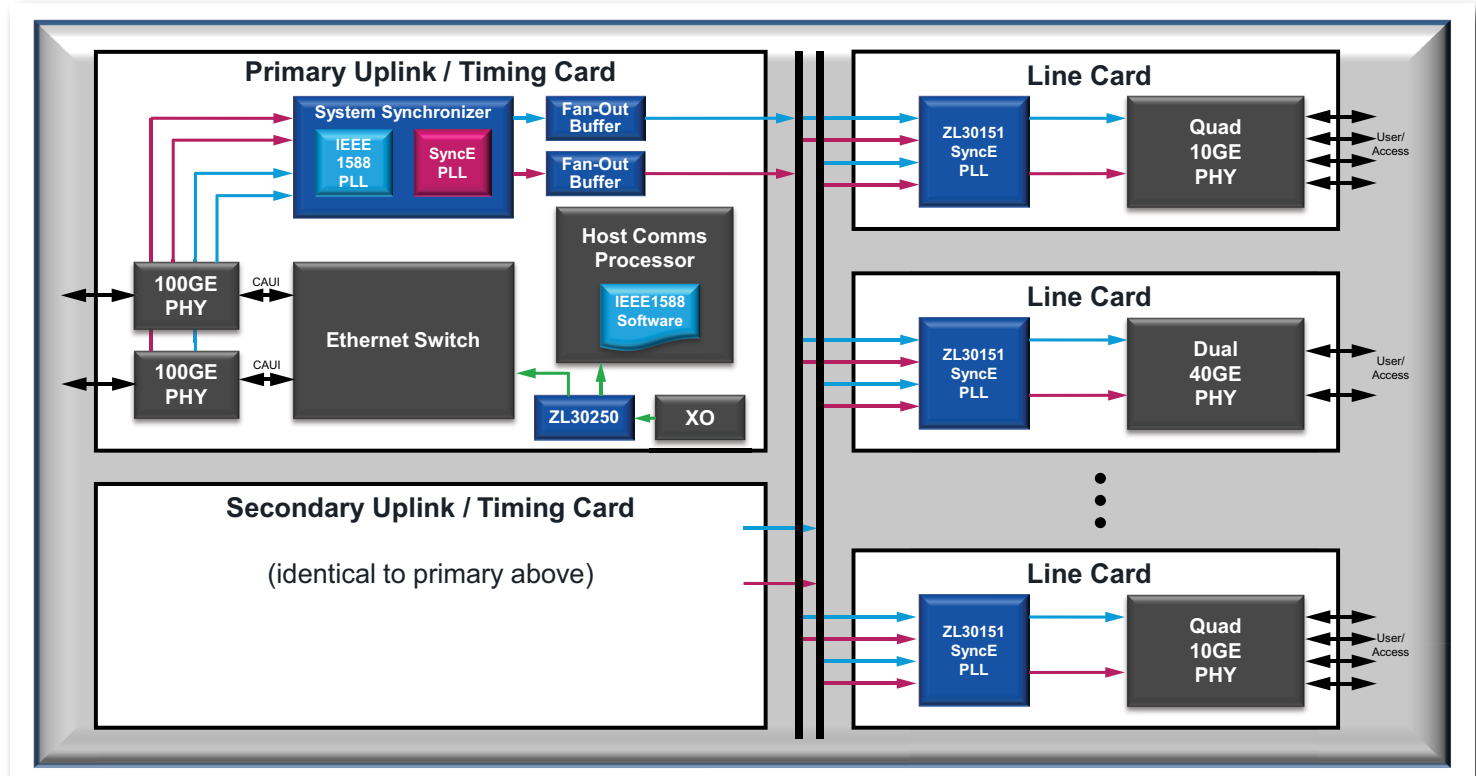
In the Synchronous Ethernet line card examples below each ZL30151 accepts two input references via the primary and secondary system timing cards and is capable of performing hitless reference switching between references upon failure. Should all references fail the ZL30151 will enter holdover mode with initial frequency accuracy better than 100 ppb.

In addition to the features highlighted in the application examples below additional features include:

- Any frequency programmability up to 650 MHz (inputs and outputs)
- Programmable loop filter bandwidth from 1 Hz to 500 Hz
- Numerically controlled oscillator (NCO) mode allowing system software to steer the DPLL frequency with resolution better than 0.01 ppb
- Internal EEPROM to store up to 4 custom configurations for automatic self-configuration at power-up

The combination of DPLL/APLL, numerous features and ultra-low jitter performance make the ZL30151 ideal for a wide variety of line cards including SyncE, SONET/SDH/PDH, Fibre Channel, PCIe, broadcast video and any other telecom line card requiring high performance in a tiny space saving package.

Synchronous Ethernet Line Cards



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