PLL Frequency Synthesizer Can Implement Local Oscillators

Analog Devices introduced a PLL (phase-locked loop) frequency synthesizer that can be used to implement local oscillators as high as 18 GHz in the up-conversion and down-conversion sections of wireless receivers and transmitters. The exceptionally high bandwidth of the ADF41020 allows designers to potentially eliminate a frequency-doubler stage, which simplifies system architecture and reduces cost in applications including microwave point-to-point and multi-point radios, wireless infrastructure equipment, VSAT (very small aperture terminal) radios, semiconductor test equipment, radar applications and private mobile radios. With an operating bandwidth up to 18GHz, this represents the highest frequency PLL available on the market today.

- Download data sheet, order samples, or evaluation boards: http://www.analog.com/adf41020 [1]
- Get support at ADI's EngineerZone online technical support community:

"The ADF41020 PLL is the latest addition to ADI's leading portfolio of phase locked loop synthesizers and extends our portfolio into higher frequency ranges," said Peter Real, vice president, Linear and RF products, Analog Devices. "This new PLL helps significantly reduce component count and system cost while continuously improving performance in next-generation radio designs."

The ADF41020 PLL frequency synthesizer consists of a low-noise, digital phase-frequency detector, a precision charge pump, a programmable reference divider and high-frequency programmable feedback dividers. A complete synthesizer can be implemented if the PLL is used with an external loop filter and VCO (voltage controlled oscillator). The PLL can be used to drive external microwave VCOs via an active loop filter. The pin-out matches very closely the pinout of the ADF4106/7/8 family of integer-N PLLs, meaning only a minor layout change is required when updating a design to take advantage of the much wider bandwidth.

ADF41020 PLL Frequency Synthesizer Key Features

- 18-GHz maximum RF input frequency
- Integrated prescaler
- Programmable dual-modulus prescaler
- 2.7-V to 3.3-V PLL power supply
- Programmable charge-pump currents
- 3-wire serial interface
- Analog and digital lock detect

- Hardware and software power-down mode

Pricing, Availability and Complementary Products

Product	**Price Each in 1,000-unit Quantities**	**Availability**	**Package**
ADF41020	$12.77	Samples available	20-lead LFC

The ADF41020 PLL frequency synthesizer is software compatible with the existing ADF4106, ADF4107 and ADF4108 PLLs and is well-suited for use with a variety of products including the ADP150 LDO (low dropout regulator) and the OP184 operational amplifier.

RF IC Portfolio Covers Entire RF Signal Chain

Using a unique combination of design skills, system understanding and process technologies, Analog Devices offers the broadest portfolio of RF ICs covering the entire RF signal chain from industry-leading high-performance RF function blocks to highly integrated WiMAX and short-range, single-chip transceiver solutions. The RF function blocks include PLL, integrated PLL/VCO and DDS synthesizers; TruPwr RMS power detectors and logarithmic amplifiers; variable gain amplifiers; power amplifiers, low noise amplifiers and other amplifiers; RF mixers and direct conversion modulator and demodulator products. These products are supported by a wide range of design resources to ease the development of RF systems, including free design tools, Circuits from the Lab reference circuits and the EngineerZone technical forums. For more information, visit http://www.analog.com/rf [2].

See the full presentation here: AnalogDevices1 [3]

Posted by Janine E. Mooney, Associate Editor

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