Product Brief

CC0616INPLL-T130LP

1.6 GHz low-jitter Integer PLL

Dec 2008, Version 1.0

KEY FEATURES

- Clock multiplying Integer PLL
- High VCO frequency of 800-1600MHz
- Reference frequency down to 6MHz
- Low period jitter of 0.1UI suitable for synchronous serial link transmitters
- Period jitter of 120pS peak-to-peak
- Accumulated RMS jitter of 100pS
- Stable differential outputs available
- Power Supplies:
  - 2.4V to 3.6V
  - 1.5V ± 10%
- Excellent PSRR: can tolerate up to 50mV noise on 3V supply and 30 mV noise on 1.5V supply
- Excellent substrate noise tolerance - can tolerate up to 700 mV of substrate spike.
- Compact foot print : contact ip@cosmiccircuits.com for more information
- Low-power : contact ip@cosmiccircuits.com for more information
- TSMC 110nm 1P4M CIS process, with 3.3V IO MOS with deep N-well option, compatible with 130nm LP

OVERVIEW

The CC0616INPLL-T130LP clock multiplying integer PLL is capable of multiplying an input reference clock as low as 8MHz to a VCO frequency as high as 1.6GHz. A range of 800MHz to 1.6GHz in the VCO frequency and programmable dividers makes it versatile. The PLL has a good jitter performance in the presence of power-supply noise and large substrate noise spikes. It provides differential output clocks with low period jitter of 0.1*UI along with less than 3% maximum offset from ideal phase transition between the differential phases. Ideally suited for MIPI and DDR applications.

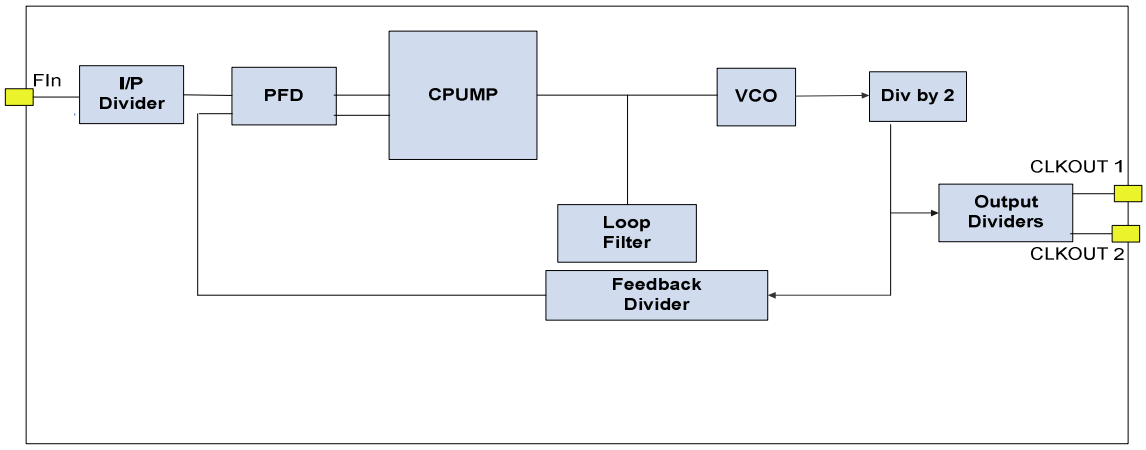
DIFFERENTIATION

- High tolerance to power-supply and substrate noise
- Wide power-supply range
- Low period jitter with wide-range VCO and input reference clock.
- Compact foot-print and low-power consumption

APPLICATIONS

- MIPI, SMIA, DDR2/3
- Clocks for digital applications.

BLOCK DIAGRAM



COSMIC circuits

CC0616INPLL-T130LP

1.6 GHz low-jitter Integer PLL

Dec 2008, Version 1.0

SPECIFICATIONS TABLE

Parameter		Condition	Value			Units
			Min	Nom	Max	
Power Supply	VDD33		2.4	2.8	3.6	V
	VDD12		1.3	1.5	1.7	V
Temperature			-40		125	C
Input Frequency			6		64	MHz
VCO Frequency			800		1600	MHz
Input divider			1		4	Counts
Feedback divider			10		256	Counts
Output Post-division			1		8	Counts
Output frequency			50		800	MHz
Output clock duty cycle			30		70	%
Frequency settling after power-up					250	µS
Jitter – pk-pk period jitter		For 800 MHz output			120	pS
Jitter - Accumulated RMS					100	pS
Tolerable Supply Noise - peak						
VDD33		Square wave			50	mV
VDD12		Square wave			30	mV
Tolerable peak substrate noise spike					700	mV
Power			Contact ip@cosmiccircuits.com			mW
Area			Contact ip@cosmiccircuits.ccm			mm^2
Process			110 nm CIS process with 4 metals and deep N-WELL option			
Status			Silicon Proven			

Note-1: Product specifications are subject to change without notice. No responsibility is assumed for use of information herein.

Note-2: Products specifications such as that described above can typically be altered and customized for specific applications. Contact Cosmic Circuits for more information.

CC0616INPLL-T130LP

1.6 GHz low-jitter Integer PLL

Dec 2008, Version 1.0

ABOUT COSMIC CIRCUITS

Cosmic Circuits is a provider of differentiated and complex Analog, Mixed-Signal & RF Silicon IP cores. We create and provide IP cores that are best-in-class and thereby make our customers' solutions differentiated and low-cost.

Cosmic Circuits has quickly grown to be a company with the potential to become the destination of choice for world-wide customers for their complex and differentiated Analog, Mixed-Signal & RF Intellectual Property needs.

DIFFERENTIATED IPS

We endeavor to create and provide Analog-IP solutions that are unique in functionality, burn the least amount of power, and take up minimal silicon die-area. 'Best-in-Class' is our Mantra. By using our analog-IP cores, our customers can expect their solution not to be disadvantaged because of analog, and even better, let the analog stand-out as a differentiating factor for the entire solution.

We value our unique blend of deep and broad analog skills and understanding of systems. Our customers can engage with our experts on the type of customization that needs to be done, or the kind of trade-offs to make, and expect the interaction to be a rewarding experience.

DELIVERABLES

We provide the following deliverables to aid quick and reliable integration into the design flow. Please contact us for any additional views.

- ✓ GDSII
- ✓ Netlist (Spice format for LVS)
- ✓ Footprint (LEF format)
- ✓ User documentation
- ✓ Module integration guidelines
- ✓ Datasheet
- ✓ Silicon validation report (where available)
- ✓ Evaluation board (where available)

LICENSING AND CUSTOMIZATION

Our engagements-models includes single-use and multi-use licensing of our IP-cores, Customization of IP-cores, Process porting of the cores to the customers' target process, turn-key development and licensing of customized IP cores and full-chip solutions, as well as supply of Known-Good-Dies (KGD) of full-chip ICs.

SUPPORT

We consider ourselves successful when our customers succeed. We offer active support, both during the chip integration phase and during the product-ramp phase. We offer on-site support when needed. With Cosmic Circuits, our customers can be assured of a reliable partner interested in the success of the end product.

Contact: Cosmic Circuits Pvt. Ltd.,
303, A-Block, AECS Layout, Kundalahalli, Bangalore, India – 560037
Phone: +91-80-40526200 **Fax:** +91-80-41162255 **Email:** ip@cosmiccircuits.com
Url: http://www.cosmiccircuits.com