PRECISION PIXEL CLOCK GENERATOR

Features

- Complete Pixel Clock Generating PHY – integrated low noise Crystal Oscillator and Synthesizer
- Highly optimized architecture that offers exceptional jitter performance for video clocking applications
- Very fine precision programmability of output clocks
- Extended input frequency range available to support industry standard crystals – 12MHz to 50MHz
- Wide range of output clocking to support low speed to ultra-high speeds – 25MHz to 1.6GHz
- Uses Analog Bits proprietary architecture that uses core logic devices only
- Fully integrated inside IO ring with proprietary low noise ESD structure
- Uses no extraneous on-chip components or band-gaps, minimizing power consumption
- Customizable to any IO ring

General Description

Graphics applications, such as video-masters used in high-end commercial imaging, PC's, gaming consoles and digital cameras mandates precision clocks with high degree of programmability and exceptionally low jitter. These applications typically operate under severe noise environment of large digital video processing chips. Analog Bits has developed a unique Precision Pixel Clock Generator that is in volume production in several high end graphics board. Our differentiated architecture has earned outstanding reviews on high volume production boards.

The function of a Pixel Frequency Synthesizer is to generate a specific frequency clock signal, such as pixel dots from a crystal (e.g. 14.318 MHz or 27 MHz crystal). The output frequency is proportional to the input frequency, and the ratio is electrically programmable by setting the control inputs of dividers embedded in the macro. The core is designed to fit inside an IO pad ring with all analog signal and power supply connections integrated and pre-connected, so presenting zero area overhead to the core, and requiring only standard digital signal connections to be made to the macro pins.

Silicon Proven

Our IP is silicon proven in multiple processes for several applications, such as high-end video and PC graphics, high-resolution camcorders and digital media display products. Parts are in volume production in TSMC and UMC processes.

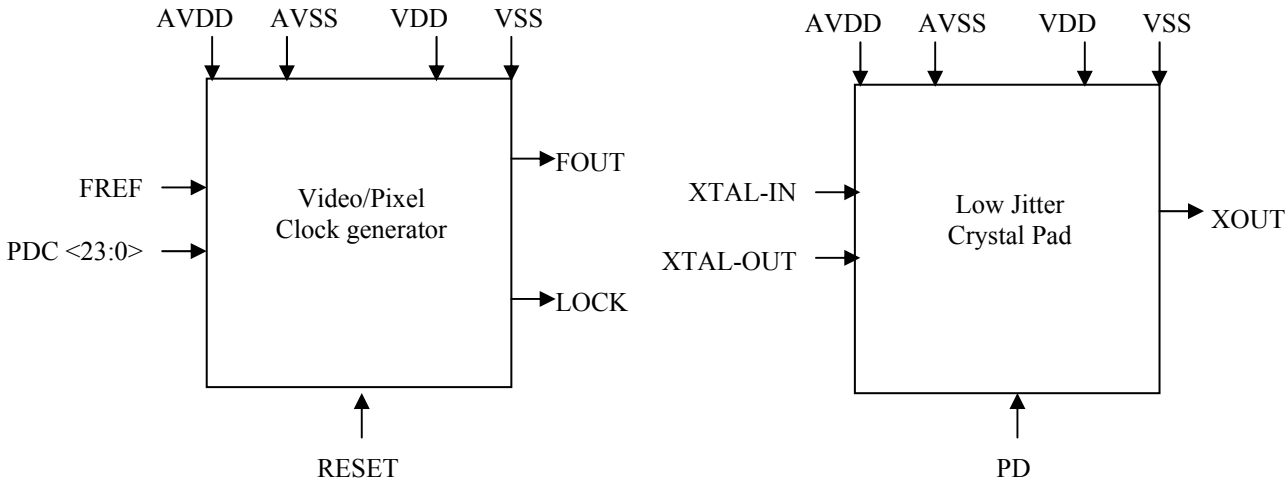
Industry Review of Pixel Clock Synthesizer

ZD Net Review of Video Board using Analog Bits Synthesizer

- ***"Outstanding signal quality, which makes for an extremely sharp displayed picture"***
- ***"No other graphics card offers better quality in terms of image sharpness"***
- ***"Delivers a pin-sharp picture"***

ANALOG BITS
The Analog Bits of your Digital Chips

Functional Diagram of Video Clock Synthesizer PHY Macros



Pin Description

Signal name	Type	Signal Description for Video/Pixel Clock Generator
AVDD/AVSS	POWER	Analog grade power supply for PLL
VDD/VSS	POWER	Digital power supply
FREF	I	Reference clock signal for PLL. It typically comes from a crystal oscillator.
FOUT	O	Output of the Frequency Synthesizer
PDC<23:0>	I	Precision Divider Control bus
RESET	I	This signal, when high, causes the PLL to power down to a zero current state
LOCK	O	Signal indicating a Lock has occurred in the PLL

Signal name	Type	Signal Description for Low Jitter Crystal Pad
AVDD/AVSS	POWER	Analog grade power supply for IO Pad
VDD/VSS	POWER	Digital power supply
XTAL-IN	I	Input clock to crystal pad
XTAL-OUT	I	Output clock to crystal pad
PU	I	Power down pin for crystal IO
XOUT	O	Output of crystal macro and reference for synthesizer