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CG400-PCI, 400 Mhz Frequency Synthesizer / Clock Generator

09/08/2010

Chase Scientific Company - *Innovators in Embedded Test & Measurement*

FEATURES

- Uses Direct Digital Synthesis (DDS) technology
- 1 MHz to 400 Mhz Clock & Sinewave Outputs
- Programmable in 0.23 Hz Step Size
- Standard “short” PCI card form factor
- Sinewave, TTL, and PECL outputs standard (Optional LVDS outputs in place of PECL)
- Extremely low phase noise option with < 125dBc/Hz @ 1KHz offset for 100 MHz Sine
- Glitchless, frequency/phase jumping
- Auxilliary user programmable logic (call factory)
- Software drivers for Windows 98 / ME / NT4 / 2000 / XP plus GUI Interface



APPLICATIONS

- High Quality A/D or D/A card clock source
- Crystal Oscillator Substitution
- Communications Clock Reference
- Manufacturing Clock Speed Stress test
- Video Encoding Clock Reference
- Semi-Custom Clock Driven Logic

DESCRIPTION

The CG400 is one of the fastest PCI Frequency Synthesizer cards on the market today. The internal clock runs at 1.0 GHz with up to 1ppm accuracy over temperature and voltage. Clock rates are programmable from 1MHz to 400 MHz in 0.23 Hz steps. Standard output configurations are Sinewave, complementary 3.3V PECL, and complementary TTL. You can use an external clock to override the internal clock. Other options include lower phase noise, LVDS, and user defined logic.

User Defined Logic

The CG400 has auxiliary complimentary outputs that can be programmed to for custom applications. The factory can download simple logic implementations written by the user or Chase can write it for you. The user can also download their own designs themselves into Lattice ispMACH4000 family device (email for details).

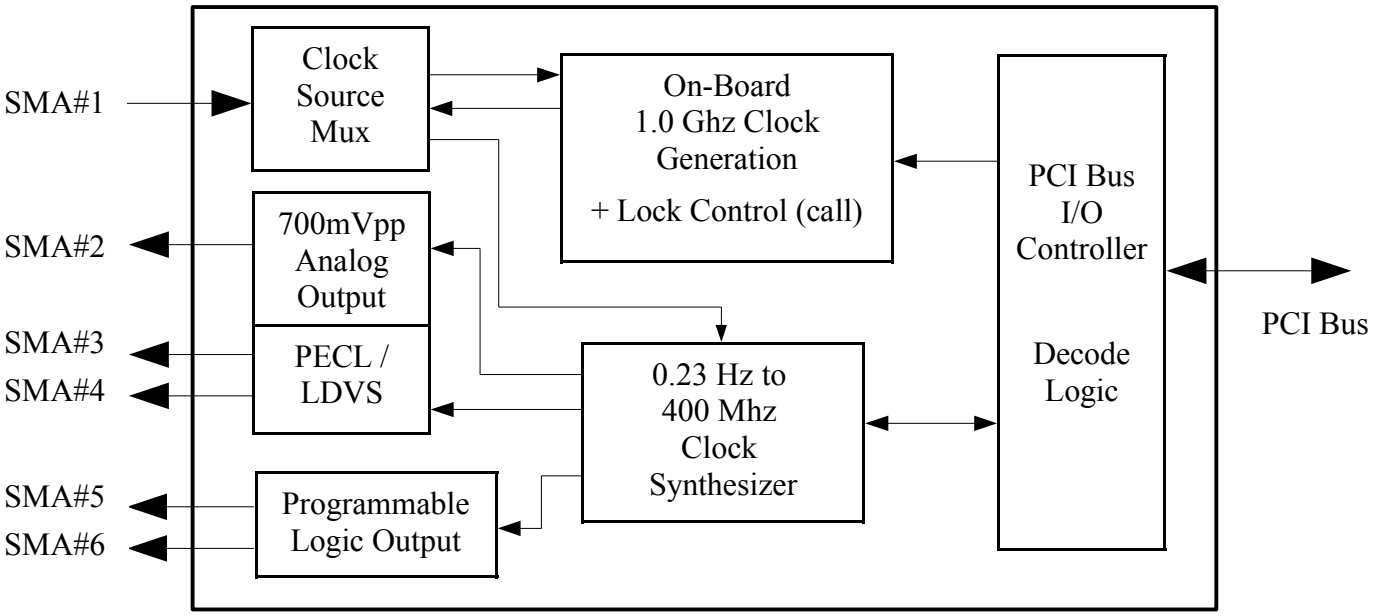
Software Drivers

The software driver is written as a 32-bit Windows DLL and is compatible with all C compilers. A simple debug GUI interface is also provided so that the customer can determine if the kernel drivers are installed properly. The GUI also allows you to set the frequency of the CG400, chirp parameters, and I/O controls without any programming. Source code is also available upon request.

Ideal for Embedded Systems

The CG400 is ideal for embedded applications where a stand-alone or bench-top unit is currently used. It provides OEMs and system builders a way to develop smaller, more efficient (faster transfer rates), and less expensive solutions than benchtop products. The CG400 can also be programmed once, then left alone.

Chase Scientific Company
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CG400 BLOCK DIAGRAM

SPECIFICATIONS

Sine Wave Output on SMA#2

Output Frequency (software programmable):
- Range: 1 MHz - 400 Mhz
- Resolution: 0.23283 Hz

Output Amplitude: 700mVpp Typical @ 100 Mhz
Distortion: < 1% @ 100 MHz

High Speed Clock Outputs SMA#3&4 (norm + comp)

Duty Cycle: 50% Typical, 40%<DS<60% worst case
Clock Jitter: Less than 10 psec RMS for Frequencies > 10 Mhz (< 2 psec RMS w/option 1)
Phase Noise: Less than -100dBc/Hz @ 1KHz offset with output set to 100 MHz (< -120dBc/Hz w/option 1)
Trise/Tfall: 300 psec Typical
Output Type: 3.3V PECL w/50 Ohms in Series (LVDS – option 2)

Low Speed Clock Outputs SMA#1&2 (norm + comp)

Output Frequency (software programmable):
- Range: 500KHz - 200 Mhz (default = div-by-2)
- Resolution: 0.11641 Hz

Duty Cycle: 50% Typical, 40%<DS<60% worst case
Clock Jitter: Less than 10 psec RMS for Frequencies > 10 Mhz (< 2 psec RMS w/option 1)
Phase Noise: Less than -100dBc/Hz @ 1KHz offset with output set to 100 MHz (< -120dBc/Hz w/option 1)
Trise/Tfall: 1 nsec Typical
Output Type: 3.3V TTL

External Input Clock

Input Signal Types: Sine or Squarewave
Frequency Range: 1.0 Mhz - 1.00 Ghz
Input Impedance: 50 ohms
Input Coupling: AC, Fc=1 Mhz (High Pass)
Amplitude (min/max): 4 dBm - 14 dBm

On-Board Clock Reference

Frequency: 1.00 Ghz
Temp Stability (0-70C): +/- 100ppm Standard
+/- 20 ppm (option 1)
+/- 1ppm (option 3)
Phase Noise (Fc=100 MHz): <-100dBc/Hz @ 1KHz offset
<-125dBc/Hz @ 1KHz offset (option 1)
<-92dBc/Hz @ 1KHz offset (option 3)

Model Number	*Description*
CG400-PCI	Standard
Option 1	Low Jitter
Option 2	LVDS on SMA#3,4
Option 3	1ppm *

* Not available with Option 1

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