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Find the *DynamicSignals / GaGe CompuGen 4300* at our website: *Click HERE*

We offer the widest range of high-speed digitizers and instrumentation cards available on the market today. Our powerful PC-based instrumentation products allow you to create reliable, flexible and high-performance solutions quickly and easily.

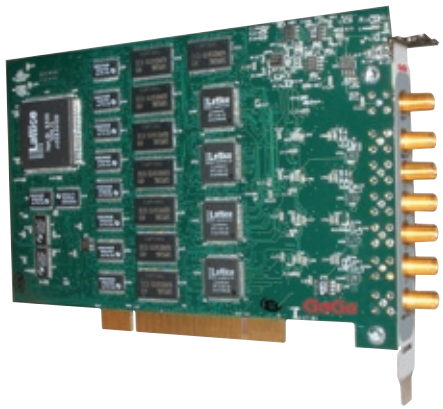
Reduce development time and costs for testing complex applications such as radar, wireless communications, spectroscopy, etc. by using our Windows-based application software or our SDKs.

APPLICATIONS

Stimulus-response test systems
RF signal generation
Wireless communications
Manufacturing test
Radar signal simulation
Optical and magnetic storage media testing
Advanced ultrasonic signal generation
Video signal generation
Network analysis

CompuGen 4300/4302

High-speed arbitrary waveform generator card



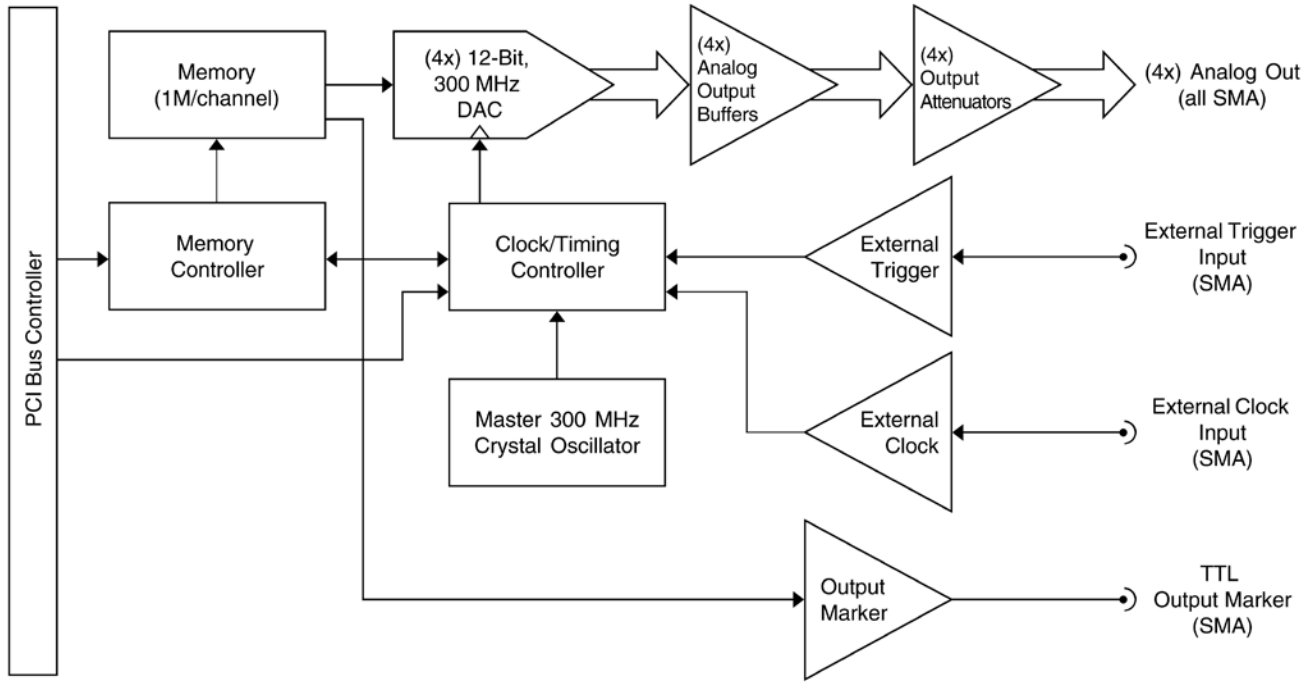
Arbitrary waveform generator and function generator card capable of providing aperiodic analog waveforms.

FEATURES

- CG4300: 4 MegaSamples of on-board memory
- CG4302: 16 MegaSamples of on-board memory
- 12 bit resolution
- 300 million conversions per second
- Free software for importing and generating waveforms
- Software Development Kits for C/C++, LabVIEW and MATLAB

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CompuGen 4300/4302 Simplified Block Diagram



COMPUGEN 4300 AND COMPUGEN 4302

Traditional waveform generators only provide simple, periodic waveforms. The circuits of today, however, require more complex and customized analog and digital stimulus signals.

The CompuGen 4300 and CompuGen 4302 enable the user to generate a limitless number of analog and digital signals.

The CompuGen 4300 and CompuGen 4302 generate analog output signals at a maximum D/A conversion rate of 300 million samples per second (MS/s) with 12-bit vertical resolution (4096 levels).

Arbitrary waveforms are generated by creating a digital representation of the waveform in the memory on-board the CompuGen 4300/4302. This digital pattern is then converted into an analog signal using a high-speed Digital-to-Analog Converter (DAC) and conditioning amplifiers.

The CompuGen 4300 and CompuGen 4302 provide 4 channels of simultaneous data generation.

FAST AMPLIFIER

The output amplifier used on the CompuGen 4300 and CompuGen 4302 has a very high output slew rate and a 50 Ω output impedance. The output rise time and fall time are 2.5 nanoseconds.

AMPLITUDE

The CompuGen 4300 and CompuGen 4302 provide a standard output range of ±0.87 Volts. A programmable attenuator provides up to 31.5 dB of signal attenuation in ½ dB increments.

MEMORY DEPTH

The large on-board memory buffer of the CompuGen 4300 and CompuGen 4302 is a powerful feature because it allows for the generation of very long signals.

The CompuGen 4300 is equipped with 4 MegaSamples of on-board memory that is shared equally among 4 channels (1M per channel).

The CompuGen 4302 is equipped with 16 MegaSamples of on-board memory that is shared equally among 4 channels (4M per channel).

CRYSTAL-BASED STABILITY

The waveform generation of CompuGen 4300 and CompuGen 4302 is controlled by a stable 300 MHz crystal oscillator. This provides temperature stability, long-term stability, and precision far above what is available from standard waveform generators.

GENERATION MODES

The CompuGen 4300 and CompuGen 4302 may be operated in two distinct generation modes: Free Run Mode and Triggered Mode.

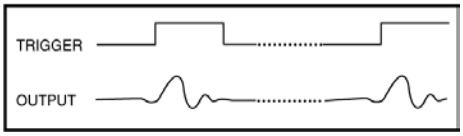
Free Run Mode is provided for the generation of continuous repetitive signals with the CompuGen 4300 and CompuGen 4302. In Free Run Mode, the on-board memory of the CompuGen 4300/4302 is seamlessly and endlessly looped during signal generation. By seamlessly, we mean that the pattern advances from the last sample back to the first in exactly one clock cycle. For example, a single cycle may be uploaded to CompuGen 4300/4302 memory and looped in order to create a continuous sine wave signal.

In Triggered Mode, the CompuGen 4300 and CompuGen 4302 are configured to generate its pre-programmed waveform in a single-shot fashion - once every time a trigger event occurs. The trigger circuitry is automatically re-armed in hardware after single-shot waveform generation in order to await another trigger event. Since it is done in hardware with no software interaction required, trigger re-arm is lightening-fast. By issuing multiple triggers, therefore, the user can easily create waveform bursts.

The source of the trigger event can be a software trigger or an external trigger signal. Using external triggering, the CompuGen 4300 and

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CompuGen 4302 generate a single-shot waveform upon receipt of the rising edge of a TTL pulse at the external trigger input. Using software triggering, the generation of a single-shot waveform occurs when a software command is issued.



SOFTWARE

CompuGen Windows drivers for Windows 2000 and Windows XP are included with the CompuGen 4300 and CompuGen 4302.

The CompuGen 4300 and CompuGen 4302 also come with CGTest, a simple waveform generation utility for Windows.

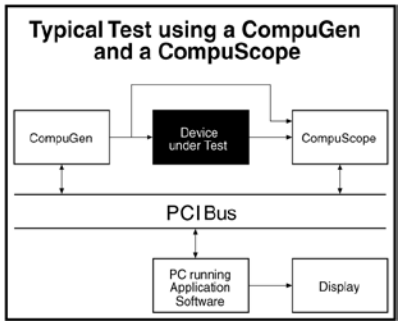
For custom software applications, Software Development Kits (SDKs) are available for C/C++, LabVIEW and MATLAB. Please contact the factory for other programming languages.

MULTI-CARD SYSTEMS

A Multi-Card CompuGen system, consisting of up to 4 independent CompuGen 4300/4302 cards, can be ordered if more than four output channels are required.

INTEGRATION WITH COMPUSCOPE CARDS

The CompuGen 4300 and CompuGen 4302 can be operated within the same system as a CompuScope digitizer card. For instance, a CompuGen/CompuScope system can be configured into a stimulus/response instrument. Here, a stimulus signal generated by the CompuGen 4300/4302 is connected through an electrical circuit and the output response signal is captured by a CompuScope digitizer card. Alternatively, a signal captured by a CompuScope digitizer card can be uploaded directly to a CompuGen 4300/4302, which can then play back the signal.



SYSTEM REQUIREMENTS

PCI-bus-compatible PC with at least one free PCI slot; 128 MB RAM, 50 MB hard disk and SVGA video.

SIZE

Single-slot mid-sized PCI card

POWER REQUIREMENTS

+5 V	2.5 Watts*
+3.3 V	8.4 Watts*
+12 V	2.6 Watts*
-12 V	1.2 Watts*

Total = 14.65 Watts. (*using worst-case waveform on all channels)

DIGITAL TO ANALOG CONVERSION

Outputs:	4 per card
Output Range:	±0.87 V (1.74 Vp-p) single-ended output into 50 Ω On-board programmable attenuator with up to 31.5 dB attenuation in ½ dB increments
Output Coupling:	DC
Output Impedance:	50 Ω
Resolution:	12 bits
Accuracy:	±3% excluding offset
Analog Output Bandwidth:	Better than 100 MHz
Connector:	SMA
Generation Modes:	Free Run Mode (continuous looping) Triggered Mode (single-shot)
Conversion Rates:	300 MHz, 150 MHz, 75 MHz
Memory Buffer Depth:	
CG4300:	4M samples total, 1M per channel
CG4302:	16M samples total, 4M per channel
Record Length:	16 samples minimum
CG4300:	1M samples maximum
CG4302:	4M samples maximum
Record Length Increment:	16 samples
Output Frequency:	150 MHz to 75 Hz
Rise Time:	2.5 nanoseconds, typical
Fall Time:	2.5 nanoseconds, typical

CRYSTAL OSCILLATOR STABILITY

Long Term:	±20 ppm

TRIGGER

Source:	External or Software
External Trigger Level:	TTL
Trigger Slope:	Rising
Connector:	SMA

EXTERNAL CLOCK

Clock Frequency:	Maximum 300 MHz Minimum 1 MHz
Voltage Level:	TTL
Duty Cycle:	50%
Connector:	SMA
Selection:	Software selectable

DIGITAL OUTPUT MARKER

One synchronizing digital output is provided on the digital Output Marker SMA connector. A 4-sample-wide TTL Marker pulse may be positioned, with a resolution of 4 samples, at any time during output waveform generation.

Connector:	SMA

LINK'N'LOOP

The CompuGen 4300 and CompuGen 4302 support Link'N'Loop Mode, which allows multiple pattern segments to be uploaded to the CompuGen's on-board memory for later selective generation.

In Link'N'Loop Mode, the CompuGen on-board memory is segmented and filled with waveform segments of equal length. As an example, with the CompuGen 4300, which has 1M of pattern memory per channel, up to 1024 waveform segments of 1024 points each may be pre-loaded into CompuGen memory for later generation. Similarly, the 4M memory per

channel of the CG4302 may be filled with up to 4096 waveform segments of 1024 points.

All Link'N'Loop segment configuration parameters are uploaded before Link'N'Loop generation so that no software interaction is required to switch amongst segments.

MULTI-CARD SYSTEMS

Maximum No. of Cards:	4
Operating Mode:	Multiple/Independent

PCI BUS INTERFACE

Plug-&-Play:	Fully supported
Bus Width:	32 bits
Bus Speed:	33 MHz
Compatibility:	5 Volt PCI-compliant

ENVIRONMENTAL

Temperature:	
Operating:	0˚C to 70˚C standard
Non-Operating:	-40˚C to 85˚C extended
Humidity:	
Operating:	20% to 80% (no condensation)
Non-Operating:	5% to 95% (no condensation)

APPLICATION SOFTWARE

CGTest Software

SOFTWARE DEVELOPMENT KITS

CompuGen PCI SDK for C/C++ for Windows
CompuGen PCI SDK for LabVIEW for Windows
CompuGen PCI SDK for MATLAB for Windows

MATERIALS SUPPLIED

One CompuGen 4300 or CompuGen 4302 card
One CompuGen PCI CD containing:
- Windows 2000/XP Drivers
- CompuGen PCI Software Development Kits for C/C++, LabVIEW and MATLAB
- CGTest Software

One Hardware Manual

WARRANTY

One year parts and labor

All specifications subject to change without notice.

ORDERING INFORMATION

Hardware & Upgrades

CompuGen 4300	800-100-430
CompuGen 4302	800-100-431

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