

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.

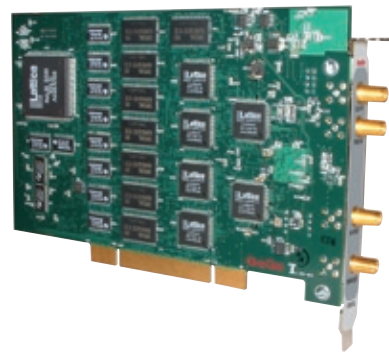
Reduce development time and costs for testing complex applications such as radar, wireless communications, spectroscopy, etc. by using our Windows-based application software or our SDKs.

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 11G/11G2

High-speed arbitrary waveform generator card

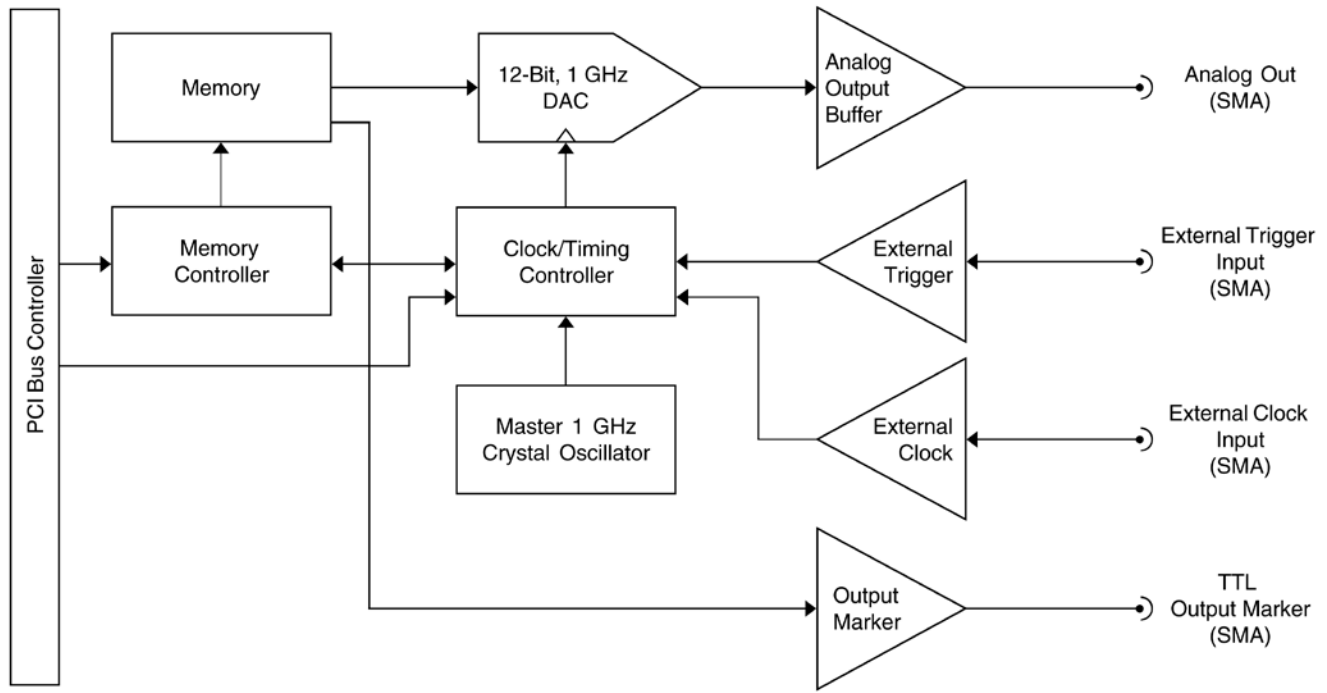


Arbitrary waveform generator and function generator card capable of providing aperiodic analog waveforms.

FEATURES

- CG11G: 4 MegaSamples of on-board memory
- CG11G2: 16 MegaSamples of on-board memory
- 12 bit resolution
- 1 billion conversions per second
- Free software for importing and generating waveforms
- Software Development Kits for C/C++, LabVIEW and MATLAB

CompuGen 11G/11G2 Simplified Block Diagram



COMPUGEN 11G AND COMPUGEN 11G2

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 11G and CompuGen 11G2 enable the user to generate a limitless number of analog and digital signals.

The CompuGen 11G and CompuGen 11G2 generate analog output signals at a maximum D/A conversion rate of 1 billion samples per second (GS/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 11G and CompuGen 11G2. This digital pattern is then converted into an analog signal using a high-speed Digital-to-Analog Converter (DAC).

FAST AMPLIFIER

The output amplifier used on the CompuGen 11G and CompuGen 11G2 has a very high output slew rate and a 50 Ω output impedance. The output rise time and fall time are 300 picoseconds.

AMPLITUDE

The CompuGen 11G and CompuGen 11G2 provide a standard output range of ± 250 mV (0.5 Vp-p). The Output of the CompuGen 11G/11G2 is AC coupled with a low frequency roll-off of 100 kHz.

MEMORY DEPTH

The large on-board memory buffer of the CompuGen 11G and CompuGen 11G2 is a powerful feature because it allows for the generation of very long signals.

The CompuGen 11G is equipped with 4 MegaSamples of on-board memory.

The CompuGen 11G2 is equipped with 16 MegaSamples of on-board memory.

CRYSTAL-BASED STABILITY

The waveform generation of CompuGen 11G and CompuGen 11G2 is controlled by a stable 1 GHz crystal oscillator. This provides temperature stability, long-term stability, and precision far above what is available from standard waveform generators.

GENERATION MODES

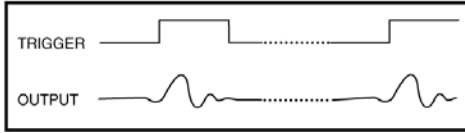
The CompuGen 11G and CompuGen 11G2 may be operated in two distinct generation modes: Free Run Mode and Triggered Mode.

Free Run Mode is provided for the generation of continuous repetitive signals with the CompuGen 11G and CompuGen 11G2. In Free Run Mode, the on-board memory of the CompuGen 11G or CompuGen 11G2 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 11G/11G2 memory and looped in order to create a continuous sine wave signal.

In Triggered Mode, the CompuGen 11G and CompuGen 11G2 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 lightning-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 11G and CompuGen 11G2 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

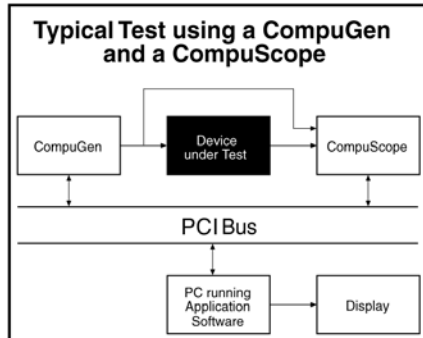
CompuGen Windows drivers for Windows 2000 and Windows XP are included with the CompuGen 11G and CompuGen 11G2.

The CompuGen 11G and CompuGen 11G2 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.

INTEGRATION WITH COMPUSCOPE CARDS

The CompuGen 11G and CompuGen 11G2 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 11G/11G2 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 11G/11G2, 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 mid-size card requiring a single PCI slot

POWER REQUIREMENTS

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

DIGITAL TO ANALOG CONVERSION

Outputs:	1 per card
Connector:	SMA
Conversion Rate:	1 GHz
Resolution:	12 bits

Output Range:	±250 mV (0.5 Vp-p) single-ended output into 50 Ω
Output Impedance:	50 Ω
Accuracy:	±3% excluding offset
Analog Output Bandwidth:	300 MHz
Output Coupling:	AC
Lower Output Cut-off Frequency:	100 kHz
Pattern Output:	Free Run Mode (continuous looping) Triggered Mode (single-shot)
Memory Buffer Depth:	
CG11G:	4M samples total
CG11G2:	16M samples total
Record Length:	64 samples minimum 4M samples maximum
CG11G:	4M samples maximum
CG11G2:	16M samples maximum
Record Length Increment:	64 samples
Output Frequency:	500 MHz to 250 Hz
Rise Time:	300 picoseconds, typical
Fall Time:	300 picoseconds, typical

CRYSTAL OSCILLATOR STABILITY

Long Term:	100 ppm
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TRIGGER

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

EXTERNAL REFERENCE

The External Reference timebase is used to synchronize the internal sampling clock.

Clock Frequency:	10 MHz
Voltage Level:	Sinewave 0 dBm to 10 dBm (±0.155 V to ±0.5 V)
Connector:	SMA
Selection:	Jumper-selectable
Termination:	50 Ω

EXTERNAL CLOCK

Clock Frequency:	1.0 GHz, 500 MHz, 250 MHz, 125 MHz only
Voltage Level:	Sinewave 0 dBm to 6 dBm (±0.155 V to ±0.310 V)
Connector:	SMA
Selection:	Jumper-selectable
Termination:	50 Ω

DIGITAL OUTPUT MARKER

One synchronizing digital output is provided on the digital Output Marker SMA connector. A 16-sample-wide TTL Marker pulse may be positioned, with a resolution of 16 samples, at any time during output waveform generation.

Connector:	SMA
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LINK'N'LOOP

The CompuGen 11G and CompuGen 11G2 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 11G, which has 4M of pattern memory per channel, up to 4096 waveform segments of 1024 points each may be pre-loaded into CompuGen memory for later generation. Similarly, the 16M memory per channel of the CG11G2 may be filled with up to 16,384 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.

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 11G or CompuGen 11G2 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; specifications are not guaranteed under all possible combinations of modes of operation.

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To find your local sales representative or distributor or to learn more about GaGe's products visit:

www.gage-applied.com

ORDERING INFORMATION

Hardware & Upgrades

CompuGen 11G	800-100-110
CompuGen 11G2	800-100-111

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