

We offer the widest range of high-speed digitizers 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 GageScope software or SDKs.

## APPLICATIONS

Spectroscopy  
Radar System Design and Test  
Signal Intelligence  
Lidar Systems  
Wireless Comm  
Non-Destructive Testing  
High-Performance Imaging  
Manufacturing Test

## CompuScope 14200

General-purpose digitizer for the PCI bus

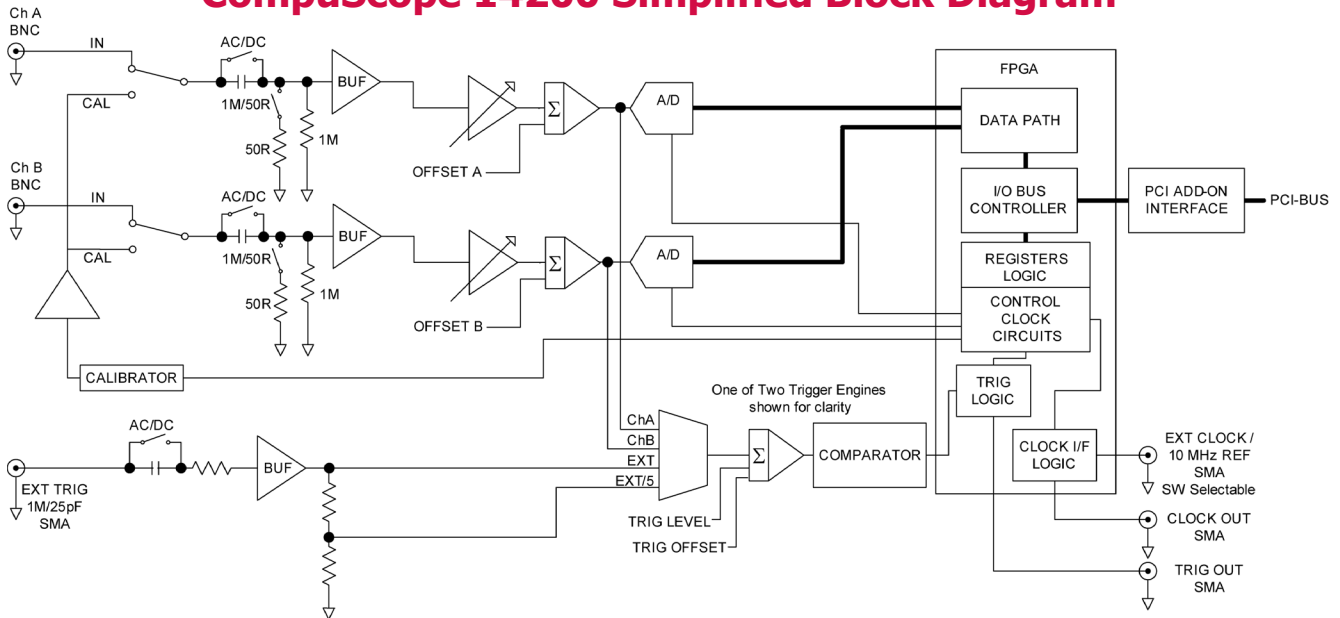


A general-purpose, high-resolution digitizer with the power to satisfy the most demanding precision measurement requirements.

## FEATURES

- 200 MS/s sampling on 2 synchronous channels
- 14 bits nominal resolution
- 100 MHz bandwidth
- Full-size, single-slot PCI card
- Now available with up to 2 GigaSamples of on-board acquisition memory!
- Full-featured, software-controlled front-end
- 32 bits, 66 MHz PCI standard for 200 MB/s transfer to PC memory
- Programming-free operation with GageScope oscilloscope software
- Software Development Kits available for LabVIEW, MATLAB, C/C#

## CompuScope 14200 Simplified Block Diagram



### A/D SAMPLING

Number of Inputs:	2
Resolution:	14 bits
ENOB (see Note 1):	10.7 bits
SNR (see Note 1):	66 dB
SFDR (see Note 1):	71 dB
SINAD (see Note 1):	64 dB
Sampling Rates, Channels A and B simultaneously, or A only:	200 MS/s, 160 MS/s, 100 MS/s, 80 MS/s, 50 MS/s, 40 MS/s, 25 MS/s, 20 MS/s, 10 MS/s, 5 MS/s, 2 MS/s, 1 MS/s, 500 kS/s, 200 kS/s, 100 kS/s, 50 kS/s
Connector:	BNC
Impedance:	1 M $\Omega$ 40 pF or 50 $\Omega$ ; (software-selectable)
Coupling:	AC or DC; (software-selectable)
AC Coupled Bandwidth:	10 Hz to 100 MHz (see Note 2)
DC Coupled Bandwidth:	DC to 100 MHz (50 $\Omega$ only, slightly less for 1 M $\Omega$ )
Flatness (see Note 2):	Within 1 dB of ideal response over 75% of bandwidth
DC Accuracy:	$\pm 0.5\%$
Input Voltage Ranges:	$\pm 100$ mV, $\pm 200$ mV, $\pm 500$ mV, $\pm 1$ V, $\pm 2$ V, $\pm 5$ V ( $\pm 5$ V is only available in 50 $\Omega$ )
DC Offset:	$\pm 1 \times$ Full Range, except in $\pm 5$ V input range
Protection:	with 1 M $\Omega$ impedance: Diode-clamped with 50 $\Omega$ impedance: No protection
Absolute Maximum Amplitude	
with 1 M $\Omega$ impedance:	$\pm 15$ V (continuous)
with 50 $\Omega$ impedance:	$\pm 5$ V (continuous); $\pm 15$ V (for 1 ms duration)

### DIRECT-TO-ADC SAMPLING MODE

Mode Control:	Software-selectable
AC Coupled Bandwidth:	30 kHz to 75 MHz (50 $\Omega$ , AC only; see Note 2)

Range:	$\pm 500$ mV
Protection:	No protection
Absolute Maximum Amplitude:	$\pm 2$ V (continuous) $\pm 4$ V (for 1 ms duration)
Sample Rate:	$\leq 100$ MS/s

### ACQUISITION MEMORY

Data Storage:	In on-board memory
Memory Depth per Channel:	16M, 64M, 512M, 1G (14-bit samples in 16-bit words)
One-Channel Mode (Channel A only):	Up to 2G (Up to full on-board memory)

### TRIGGERING

Trigger Engines:	2 per system
Source:	CH A, CH B, EXT or Software
Input Combination:	1, 2, 1 or 2
Type:	Analog triggering
Trigger Level Accuracy:	$\pm 5\%$ of Full Scale
Slope:	Positive or Negative; software-selectable
Sensitivity:	$\pm 10\%$ of Full Scale This implies that signal amplitude must be at least 20% of full scale to cause a trigger to occur. Smaller signals are rejected as noise.
Post-Trigger Data:	128 points minimum. Can be defined with a 64 point resolution.
Maximum Record Length:	Maximum memory depth

### EXTERNAL TRIGGER

Impedance:	1 M $\Omega$ , 35 pF
Amplitude:	Absolute maximum $\pm 15$ V
Voltage Range:	$\pm 1$ V, $\pm 5$ V (software-selectable)
Bandwidth:	80 MHz
Coupling:	AC or DC

Connector: SMA

### TRIGGER OUT

Impedance: 50  $\Omega$   
Amplitude: 0-2.5 V (TTL)  
Connector: SMA

### INTERNAL CLOCK

Source: Clock oscillator  
Accuracy:  $\pm 25$  ppm (0 to 50°C ambient)

### EXTERNAL CLOCK

Maximum Frequency: 200 MHz  
Minimum Frequency: 1 MHz  
Signal Level: Minimum 1 V RMS  
Maximum 2 V RMS  
Termination Impedance: 50  $\Omega$   
Sampling Edge: Rising  
Duty Cycle: 50%  $\pm$  5%  
Connector: SMA  
Coupling: AC

### EXTERNAL REFERENCE

The External Reference timebase is used to synchronize the Internal Sampling Clock

Frequency: 10 MHz; (software-selectable)  
Signal Level: Minimum 1 V RMS  
Maximum 2 V RMS  
Impedance: 50  $\Omega$   
Sampling Edge: Rising  
Duty Cycle: 50%  $\pm$  5%  
Connector: SMA

### CLOCK OUT

Maximum Frequency: 100 MHz  
Minimum Frequency: 1 MHz (from External Clock)  
50 kHz (from Internal Clock)  
Output Frequency: Equal to the sample rate when it is  $\leq 100$  MS/s  
Equal to half the sample rate when it is  $> 100$  MS/s  
Signal Level: 0-2.5 V (TTL)  
Impedance: 50  $\Omega$   
Duty Cycle: 50%  $\pm$  10%  
Connector: SMA

### MULTIPLE RECORD

Pre-trigger Data: Up to virtually full record length  
Record Length: 128 points minimum.  
Can be defined with a 64 points resolution.  
Maximum # Trigger: 8,388,608

### MULTI-CARD SYSTEMS

A unique feature of the CS14200 is its ability to automatically reconfigure itself to Master/Slave or Independent multi-card system simply by adding or removing the Master/Slave Timing Module.

Operating Mode: Master/Slave or Multiple/Independent configurations  
Master/Slave: 2 to 8 cards

Multiple/Independent: Limited by PC backplane

### TIMESTAMPING

Resolution: 7.5 ns  
Counter turnover: 24 hours continuous

### CARD SIZE

Single-slot, full-length PCI

### SYSTEM REQUIREMENTS

PCI-based computer, minimum Pentium II 500 MHz, with at least one free full-length PCI slot, 128 MB RAM, 100 MB hard disk.

### COOLING SYSTEM

Minimum CFM Requirement: *Characterization in progress*

### POWER (IN WATTS, PER CARD)

+5 V		
	Worst	Typical
All Memory Depths	18.25	18.25
+3.3 V		
	Worst	Typical
All Memory Depths	6.67	6.67
+12 V		
	Worst	Typical
All Memory Depths	0	0
-12 V		
	Worst	Typical
All Memory Depths	0	0

### PCI BUS INTERFACE

Plug-&-Play: Fully supported  
Bus Mastering: Fully supported  
Scatter-Gather: Fully supported  
Bus Width: 32 bits  
Bus Speed: 66 MHz or 33 MHz  
Bus Throughput: 200 MB/s to PC memory (66 MHz PCI; dependent on motherboard and number of PCI-PCI bridges)  
Compatibility: PCI-compliant, v.2.2  
Also v.2.1 systems that supply 3.3 V to PCI slot

### OPERATING SYSTEMS

Windows Vista, XP: All Versions  
Windows 2000: SP1 or higher

### APPLICATION SOFTWARE

GageScope: Windows-based software for programming-free operation  
LITE Edition: Included with purchase, provides basic functionality  
Standard Edition: Provides limited functionality of advanced analysis tools, except for Extended Math  
Professional Edition: Provides full functionality of all advanced analysis tools

