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TECHNOLOGY GROUP

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Find the *DynamicSignals / GaGe OCT-838-009* at our website: ***Click HERE***

The GaGe Octopus™ family of multi-channel digitizers features up to 8 channels in a single-slot PCI Express or PCI card with up to 125 MS/s sampling per channel, and up to 32 GB of on-board acquisition memory. Combine several Octopus cards for up to 64 channels in a single system.

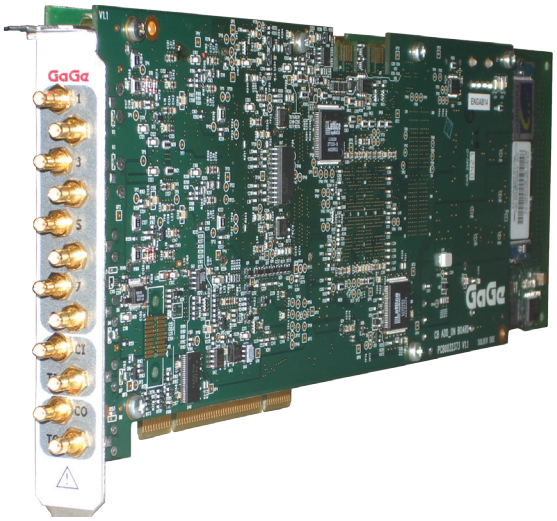
With more than 35 new digitizers to choose from, we offer you many more options than ever before.

APPLICATIONS

Radar Design and Test
Disk Drive Testing
Manufacturing Test
Signal Intelligence
Lidar Systems
Communications
Non-Destructive Testing
Spectroscopy
High-Performance Imaging
Ultrasound Test

Octopus CompuScope 83XX

14-Bit Family of Multi-channel Digitizers for the PCI Express and PCI Bus



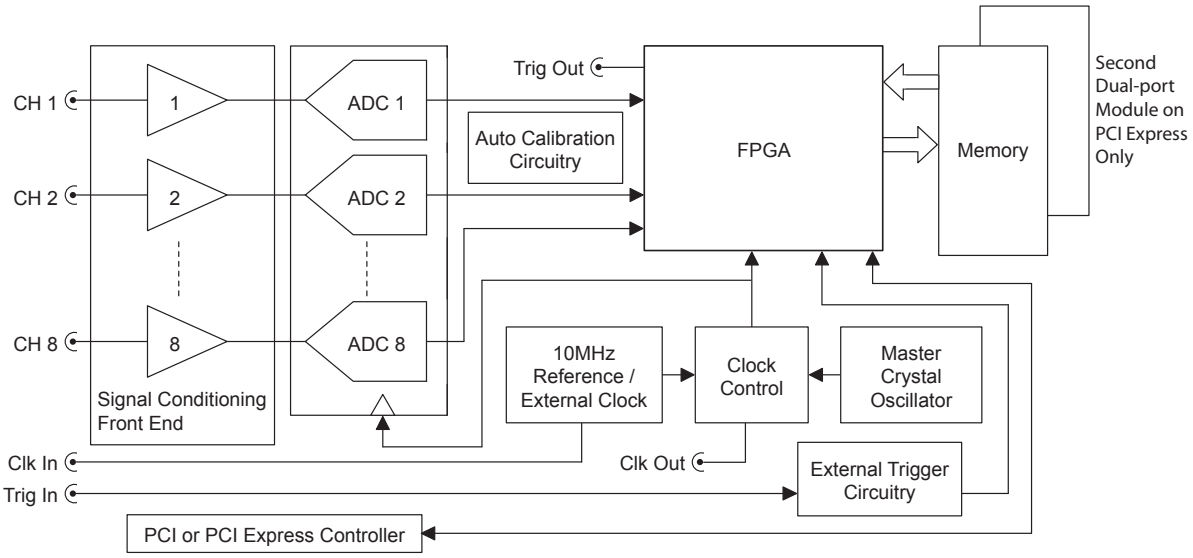
The Octopus family provides high performance and high channel density on the PCI Express or PCI platform.

FEATURES

- 2, 4, or 8 digitizing channels
- 10, 25, 50, 65, 100, or 125 MS/s sampling per channel
- 14 bits vertical resolution
- 128 MS to 16 GS on-board acquisition memory
- More than 100 MHz bandwidth
- Full-size, single-slot PCI Express or PCI card
- Full-featured front-end, with software control over input ranges, coupling and impedances
- Dual-port memory and data streaming at up to 3.1 GB/s on PCI Express models
- 32 bits, 66 MHz PCI for 200 MB/s transfer to PC memory
- Ease of integration with External or Reference Clock In and Clock Out, External Trigger In and Trigger Event Out
- Programming-free operation with GageScope® oscilloscope software
- Software Development Kits available for LabVIEW, MATLAB, C/C#
- Custom FPGA firmware available

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Octopus CompuScope 83XX Simplified Block Diagram



A/D SAMPLING

Number of Inputs:	2, 4 or 8
Resolution:	14 bits
ENOB (see Note 1):	11.0 bits
SNR (see Note 1):	68 dB
SFDR (see Note 1):	80 dB
SINAD (see Note 1):	67.4 dB
Maximum Sampling Rate Per Channel (product-dependent):	10, 25, 50, 65, 100 or 125 MS/s
Sampling Rates (product-dependent):	125 MS/s, 100 MS/s, 65 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, 20 kS/s, 10 kS/s, 5 kS/s, 2 kS/s, 1 kS/s
Connector:	SMB
Impedance:	1 MΩ or 50 Ω; (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 Ω see Note 5, slightly less for 1 MΩ)
Flatness (see Note 3):	Within ±0.5 dB of ideal response to 90 MHz
DC Accuracy (see Note 4):	±0.5 %
Input Voltage Ranges:	±100 mV, ±200 mV, ±500 mV, ±1 V, ±2 V, ±5 V, ±10 V (±10 V is only available in 1 MΩ)
DC Offset	± 1xFull Range (above ±5 V is limited to ±2.5 V)

LOW-PASS FILTER

Type:	3-pole Bessel, 1 per channel
Cut-off Frequency:	24 MHz
Operation:	Individually software-selectable

ACQUISITION MEMORY

Octopus Model	Available memory options				
CS83XX (PCI)	128 MS	256 MS	512 MS	1 GS	2 GS
CSE83XX (PCI Express)	1 GS	2 GS	4 GS	8 GS	16 GS

Note: All memory sizes are expressed in Samples, not Bytes
Note: Memory may be shared among 1, 2, 4, or 8 channels

Octopus Model	Memory Architecture	Data Streaming?
CS83XX (PCI)	Single Port	No
CSE83XX (PCI Express)	Dual Port	Yes

TRIGGERING

Trigger Engines:	2 per channel, 1 for external trigger
Source:	CH 1 to 8, EXT or Software
Input Combination:	All combinations of sources logically OR'ed
Trigger Level Accuracy:	Less than ±2% of Full Scale for channel triggering
Slope:	Positive or Negative; software-selectable
Sensitivity:	±2% of Full Scale This implies that signal amplitude must be at least 4% 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:	2 kΩ
Amplitude:	Absolute maximum ±15 V
Voltage Range:	±1 V, ±5 V (software-selectable)

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Bandwidth:	>100 MHz
Coupling:	AC or DC
Connector:	SMB

TRIGGER OUT

Impedance:	50 Ω compatible
Amplitude:	0-2.5 V
Connector:	SMB

INTERNAL CLOCK

Accuracy:	±1 ppm (0 to 50°C ambient)

EXTERNAL CLOCK

Maximum Frequency:	Maximum product sample rate
Minimum Frequency:	2 MHz
Signal Level:	Minimum 1 V RMS Maximum 2 V RMS
Termination Impedance:	50 Ω
Sampling Edge:	Rising
Duty Cycle:	50% ±5%
Connector:	SMB
Coupling:	AC

EXTERNAL REFERENCE

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

Frequency:	10 MHz ±1000 ppm; (software-selectable)
Signal Level:	Minimum 1 V RMS Maximum 2 V RMS
Impedance:	50 Ω
Sampling Edge:	Rising
Duty Cycle:	50% ±5%
Connector:	SMB

CLOCK OUT

Maximum Frequency:	Maximum product sample rate
Minimum Frequency:	2 MHz (from External Clock) 1 kHz (from Internal Clock)
Signal Level:	0-2.5 V
Impedance:	50 Ω compatible
Duty Cycle:	50% ±10%
Connector:	SMB

MULTIPLE RECORD

Pre-trigger Data:	Up to virtually full record length
Record Length:	128 points minimum. Can be defined with a 64 points resolution.

TIMESTAMPING

Resolution:	One sampling interval
Counter turnover:	>24 hours continuous

CARD SIZE

Single-slot, full-length PCI or PCI Express (8 or 16 Lane)

†POWER (IN WATTS, PER CARD)

25.0 W (typical)

†Measured on a typical 4-channel Octopus card.

SYSTEM REQUIREMENTS

PC computer, minimum Pentium II 500 MHz, with at least one free full-length PCI or PCI Express (8 or 16 Lane) slot, 128 MB RAM, 200 MB of free hard disk space.

BUS INTERFACE

	CS83XX (PCI)	**CSE83XX (PCI Express)**
Plug-&-Play	Fully supported	Fully supported
Bus Mastering	Fully supported	Fully supported
Scatter-Gather:	Fully supported	Fully supported
Bus Width:	32-bits	8 Lanes
Bus Speed:	66 MHz or 33 MHz	40 Gb (Gen2) or 20 Gb (Gen1)
Bus Throughput:	200 MB/s to PC memory (66 MHz PCI; dependent on motherboard and configuration)	3.1 GB/s (Gen2) or 1.6 GB/s (Gen1)
Compatibility:	PCI-compliant, v.2.2. Also v.2.1 systems that supply 3.3 V to PCI slot	PCI Express 2.0 compliant (Also 1.1 at 20 Gb)

MULTI-CARD SYSTEMS

Operating Mode: Master/Slave (PCIe Only) or multiple independent

Number of Cards:

Master/Slave (PCIe Only): 2 to 8 cards

Multiple/Independent: Limited only by backplane and power supply

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

SOFTWARE DEVELOPMENT KITS (SDK)

CompuScope SDK for C/C# for Windows*

CompuScope SDK for MATLAB for Windows

CompuScope SDK for LabVIEW for Windows

*C/C# SDK is compatible with LabWindows/CVI 7.0+ compiler. Visual Basic.NET support available with purchase of C/C# SDK.

Contact your GaGe Sales Agent for information on Linux support.

WARRANTY

One year parts and labor

Certificate of NIST Traceable Calibration is included.

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ORDERING INFORMATION

Hardware & Upgrades

Octopus 14-bit Family	PCI CompuScopes			PCI Express CompuScopes
	2 Channel	4 Channel	8 Channel	8 Channel
10 MS/s	CS8320: OCT-832-000	CS8340: OCT-834-000	CS8380: OCT-838-000	CSE8380: OCE-838-000
25 MS/s	CS8322: OCT-832-002	CS8342: OCT-834-002	CS8382: OCT-838-002	CSE8382: OCE-838-002
50 MS/s	CS8324: OCT-832-004	CS8344: OCT-834-004	CS8384: OCT-838-004	CSE8384: OCE-838-004
65 MS/s	CS8325: OCT-832-005	CS8345: OCT-834-005	CS8385: OCT-838-005	CSE8385: OCE-838-005
100 MS/s	CS8327: OCT-832-007	CS8347: OCT-834-007	CS8387: OCT-838-007	CSE8387: OCE-838-007
125 MS/s	CS8329: OCT-832-009	CS8349: OCT-834-009	CS8389: OCT-838-009	CSE8389: OCE-838-009
	Memory Upgrade: 128 MS to 256 MS		OCT-181-001	Memory Upgrade: 1 GS to 2 GS MEM-181-001
	Memory Upgrade: 128 MS to 512 MS		OCT-181-003	Memory Upgrade: 1 GS to 4 GS MEM-181-003
	Memory Upgrade: 128 MS to 1 GS		OCT-181-005	Memory Upgrade: 1 GS to 8 GS MEM-181-005
	Memory Upgrade: 128 MS to 2 GS		OCT-181-007	Memory Upgrade: 1 GS to 16 GS MEM-181-007
				Master Multi-Card Upgrade (PCIe Only) OCT-181-012
				Slave Multi-Card Upgrade (PCIe Only) OCT-181-013

Cables

36" SMB to BNC male cable	ACC-001-001
36" SMB to BNC male cable - 4 pack	ACC-001-003
6" SMB to BNC female cable	ACC-001-011
6" SMB to BNC female cable - 4 pack	ACC-001-013
6" SMB to SMB jumper cable	ACC-001-021
6" SMB to SMB jumper cable - 4 pack	ACC-001-023

eXpert™ Firmware Options

eXpert Signal Averaging Firmware Option	250-181-001
eXpert FIR Filtering Firmware Option	250-181-002
eXpert Peak Detection Firmware Option	250-181-003
eXpert FFT Firmware Option	250-181-004
eXpert Firmware Option bundle (Signal Averaging, FIR Filtering and Peak Detection)	888-100-026

GageScope® Software

GageScope: Lite Edition	Included
GageScope: Standard Edition (with Purchase of CompuScope Hardware)	300-100-351
GageScope: Professional Edition (with Purchase of CompuScope Hardware)	300-100-354

Software Development Kits (SDKs)

GaGe SDK Pack on CD	200-113-000
CompuScope SDK for C/C#	200-200-101
CompuScope SDK for MATLAB	200-200-102
CompuScope SDK for LabVIEW	200-200-103
eXpert Data Streaming (PCI Express Only)	STR-181-000

All specifications subject to change without notice.

Notes to specifications:

1) Measured at 125 MS/s in the ±500 mV range with 50 Ω input impedance using a 10 MHz sine wave with an amplitude of 95% of full scale and the on-board filtering capability.
2) 10 Hz at 1 MΩ only.
3) Measured at 125 MS/s in the ±500 mV range with 50 Ω input impedance with an amplitude of 95% of full scale.
4) Measured on ±500 mV, ±1 V, ±2 V input ranges for both 50 Ω and 1 MΩ input impedance settings.
5) Measured on ±1 V, ±2 V, ±5 V input ranges using the 50 Ω input impedance setting.

Unless otherwise specified, all dynamic performance specs have been qualified on engineering boards.

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