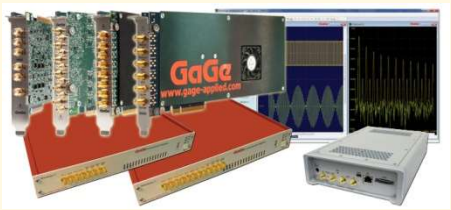
GaGe is a worldwide industry leader in high speed data acquisition solutions featuring a portfolio of the highest performance digitizers, PC oscilloscope software, powerful SDKs for custom application development, and turnkey integrated PC-based measurement systems.



Oscar Express CompuScope
2-4 CH, 50 to 100 MS/s, 16-Bit, PCIe Digitizer

APPLICATIONS

RADAR Design and Test

Signals Intelligence (SIGINT)

Ultrasonic Non-Destructive Testing

LIDAR Systems

Communications

Spectroscopy

High-Performance Imaging

Time of Flight

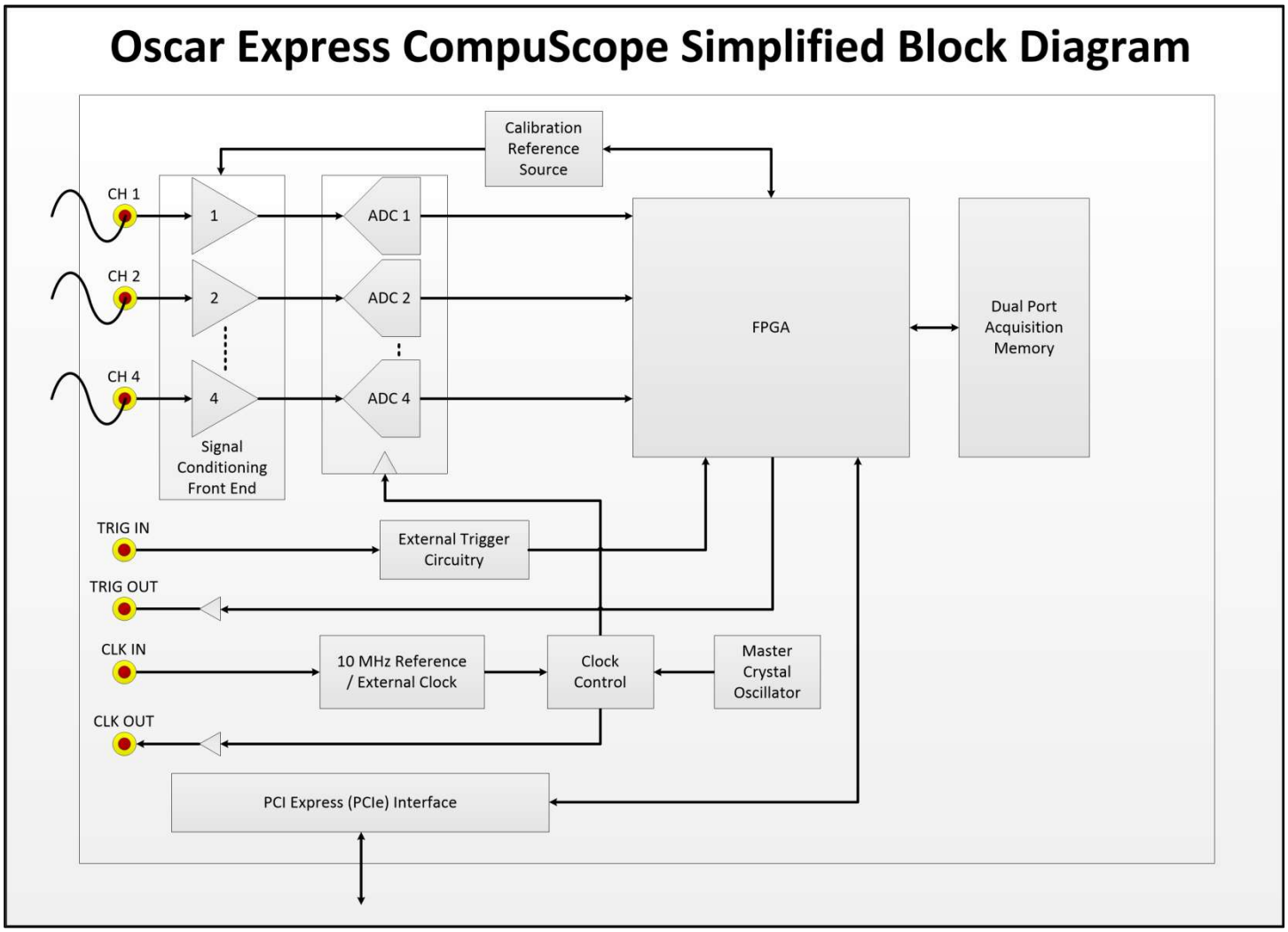
Life Sciences

Particle Physics

FEATURES

- 2 or 4 Digitizing Input Channels
- 100 MS/s or 50 MS/s Maximum Sampling Rate per Channel
- 65 MHz Analog Input Bandwidth
- 16-Bit Vertical A/D Resolution
- 2 GS (4 GB) Onboard Memory Standard, Expandable up to 8 GS (16 GB)
- Dual Port Memory with Sustained PCIe Data Streaming at 800 MB/s
- Full-Featured Front-End with AC/DC Coupling and 50 Ω /1M Ω Inputs
- Software Control of Input Voltage Ranges, Coupling and Impedances
- Ease of Integration with External or Reference Clock In & Clock Out
- External Trigger In & Trigger Out
- Synchronized Multi-Card Systems up to 8 Cards for 32 Channels
- Full-Height Full-Length PCI Express (PCIe) Generation 2.0 x8 Card
- Programming-Free Operation with GaGeScope PC Oscilloscope Software
- Software Development Kits Available for C/C#, LabVIEW and MATLAB
- Windows 10/8/7 and Linux Operating Systems Supported

Oscar Express CompuScope Simplified Block Diagram



MAIN SPECIFICATIONS

Model #	:	CSE4424	CSE4427	CSE4444	CSE4447
# of Input Channels	:	2	2	4	4
Max. Rate per Channel	:	50 MS/s	100 MS/s	50 MS/s	100 MS/s
Vertical A/D Resolution	:	16-bit	16-bit	16-bit	16-bit

DYNAMIC PARAMETER PERFORMANCE

ENOB	:	12.0 Bits
SNR	:	75.2 dB
THD	:	-82.1 dB
SINAD	:	74.4 dB
SFDR	:	86.0 dB

Dynamic parameter measurements are done by acquiring a high purity 10 MHz sine wave with amplitude of 95% of the input range sampling at maximum 100 MS/s. These measurements were taken on the ±500 mV input range using 50 Ω termination and DC coupling and with applied anti-aliasing filter. Dynamic parameter calculations are done from a 16 kiloSample Fourier Spectrum after applying a 7-term Blackman Harris Windowing Function to the time-domain waveform.

A/D SAMPLING

Rates per Channel, Model dependent (software selectable)	:	100 MS/s, 50 MS/s, 25 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
Rate Accuracy	:	±1 part-per-million (0° to 50° C ambient)

ACQUISITION MEMORY

Acquisition memory size is shared and equally divided among all active input channels (1, 2 or 4).

Standard Size	:	2 GS (4 GB)
Optional Sizes	:	4 GS (8 GB), 8 GS (16 GB)
Architecture	:	Dual Port
Data Streaming	:	Yes

ANALOG INPUT CHANNELS

Connectors	:	SMA
Impedance	:	50 Ω or 1M Ω (software selectable)
Coupling	:	AC or DC (software selectable)
Analog Bandwidth	:	DC (50 Ω) = DC to 65 MHz AC (1M Ω) = 10 Hz to 65 MHz
Voltage Ranges	:	±100 mV, ±200 mV, ±500 mV, ±1 V, ±2 V, ±5 V, ±10 V, ±20 V, ±50 V (software selectable; ±10 V, ±20 V, ±50 V only available on 1M Ω)
Flatness	:	Within ±5 dB of ideal response to 50 MHz. Measured at 100 MS/s in the ±500 mV range with 50 Ω input impedance and 95% of full scale amplitude.
DC Accuracy	:	±0.5%. Measured on ±500 mV, ±1 V, ±2 V input ranges for both 50 Ω and 1M Ω input impedance settings.
DC User Offset	:	±1 x Full Range (above ±5 V is limited to ±2.5 V)
Absolute Max. Input	:	±15 V (50 Ω), ±75 V (1M Ω on all but two lowest Input Ranges, where Max is ±25 V)

LOW-PASS FILTER

Type	:	3-pole, 1 per Channel
Cut-Off Frequency	:	25 MHz
Operation	:	Individually Software Selectable

TRIGGERING

Engines	:	2 per Channel, 1 for External Trigger
Source	:	Any Input Channel, External Trigger or Software
Input Combination	:	All Combinations of Sources Logically OR'ed
Slope	:	Positive or Negative (software selectable)
Sensitivity	:	±2% of Full Scale Input Range of Trigger Source. 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.
Accuracy	:	Less than ±2% of Full Scale for Channel Triggering
Post-Trigger Data	:	32 points minimum. Can be defined with 32 point resolution.

EXTERNAL TRIGGER

Connector	:	SMA
Impedance	:	2k Ω
Coupling	:	AC or DC
Bandwidth	:	>100 MHz
Voltage Range	:	±1 V, ±5 V (software selectable)

TRIGGER OUT

Connector	:	SMA
Impedance	:	50 Ω
Amplitude	:	0 – 1.8 V

CLOCK IN

Connector	:	SMA
Signal Level	:	Minimum 1 V RMS, Maximum 2 V RMS
Impedance	:	50 Ω
Coupling	:	AC
Duty Cycle	:	50% ±5%
Input Modes	:	External Clock or 10 MHz Reference Clock
External Clock Mode Rates	:	Minimum 10 MHz to Maximum Sampling Rates of 100 MHz or 50 MHz.
External Reference Clock Mode Rate	:	10 MHz ±1000 ppm; the external reference time base is used to synchronize the internal sampling clock.

CLOCK OUT

Connector	:	SMA
Signal Level	:	0 – 1.8 V
Impedance	:	50 Ω Compatible
Duty Cycle	:	50% ±10%
Output Modes	:	Maximum Sampling Clock Frequency or 10 MHz Reference Clock
Max. Frequency	:	Maximum Sampling Rates, 100 MHz or 50 MHz.
Min. Frequency	:	10 MHz from External Clock, 1 kHz from Internal Clock

MULTIPLE RECORD

Pre-Trigger Data	:	Up to 32 kS Total
Record Length	:	32 points minimum. Can be defined with 32 point resolution.

TIME-STAMPING

Timing Resolution	:	One Sample Clock Cycle
Counter Turnover	:	>48 Hours Continuous

MULTI-CARD SYSTEMS

Master/Slave Mode	:	Provides synchronized triggering and sampling on all channels for all cards to create larger multi-channel systems.
Independent Mode	:	Each card operates independently within the system.
Number of Cards	:	2 to 8 Cards for up to 32 Channels Total

DIMENSIONS

Size	:	Single Slot, Full Height, Full Length

POWER CONSUMPTION

Power	:	25 Watts (typical)

PC SYSTEM REQUIREMENTS

PCI Express (PCIe) Slot	:	1 Free Full-Height Full-Length PCIe Gen1, Gen2 or Gen3, x8 or x16 Slot
Operating System	:	Windows 10/8/7 (32-bit/64-bit), Linux – Requires SDK for C/C#

ORDERING INFORMATION

Hardware

Model Number	A/D Resolution	# of Channels	Max. Sampling Rate per Channel	Memory Size	Order Part Number
CSE4424	16-bit	2	50 MS/s	2 GS (4 GB)	OSC-442-004
CSE4427	16-bit	2	100 MS/s	2 GS (4 GB)	OSC-442-007
CSE4444	16-bit	4	50 MS/s	2 GS (4 GB)	OSC-444-004
CSE4447	16-bit	4	100 MS/s	2 GS (4 GB)	OSC-444-007

Memory Upgrades

Memory Upgrade: 2 GS (4 GB) to 4 GS (8 GB)	MEM-181-203
Memory Upgrade: 2 GS (4 GB) to 8 GS (16 GB)	MEM-181-205

Cable Accessories

Set 1 Cable SMA to BNC	ACC-001-031
Set 4 Cable SMA to BNC	ACC-001-033

Master/Slave Upgrades

Master Multi-Card Upgrade	OSC-181-012
Slave Multi-Card Upgrade	OSC-181-013

eXpert FPGA Firmware Options

eXpert PCIe Data Streaming	STR-181-000
eXpert Signal Averaging	250-181-001

GaGeScope Software

GaGeScope: Lite Edition	Included
GaGeScope: Standard Edition	300-100-351
GaGeScope: Professional Edition	300-100-354

Software Development Kits (SDKs)

GaGe SDK Pack (includes C/C#, MATLAB, LabVIEW SDKs)	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

WARRANTY

Standard two years parts and labor.

Unless otherwise specified, all dynamic performance specs have been qualified on engineering boards. All specifications subject to change without notice.

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GaGe is a product brand of DynamicSignals LLC, an ISO 9001:2008 Certified Company

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www.gage-applied.com