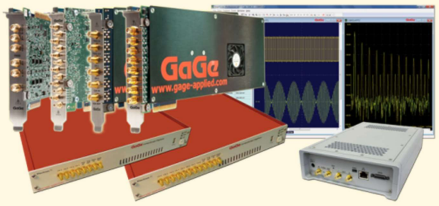
GaGe is a worldwide industry leader in high speed data acquisition solutions featuring a portfolio of the highest performance digitizers, PC oscilloscope software, powerful SDKs for custom application development, and turnkey integrated PC-based measurement systems.



4-Channel 16-Bit PXIe Gen3 RazorMax Express

Unprecedented Speed & Resolution in a 1 GS/s Streaming Digitizer
700 MHz Bandwidth with Stream Rates at 4+ GB/s

APPLICATIONS

Automatic Test Equipment

Military & Commercial Testing – ATE

Wideband RF Signal Analysis

RADAR Design and Test

Real-Time Spectrum Operations

Electronic Warfare

Ultrasonic Non-Destructive Testing

LIDAR Systems

Communications

Optical Coherence Tomography

Spectroscopy

High-Performance Imaging

Time of Flight

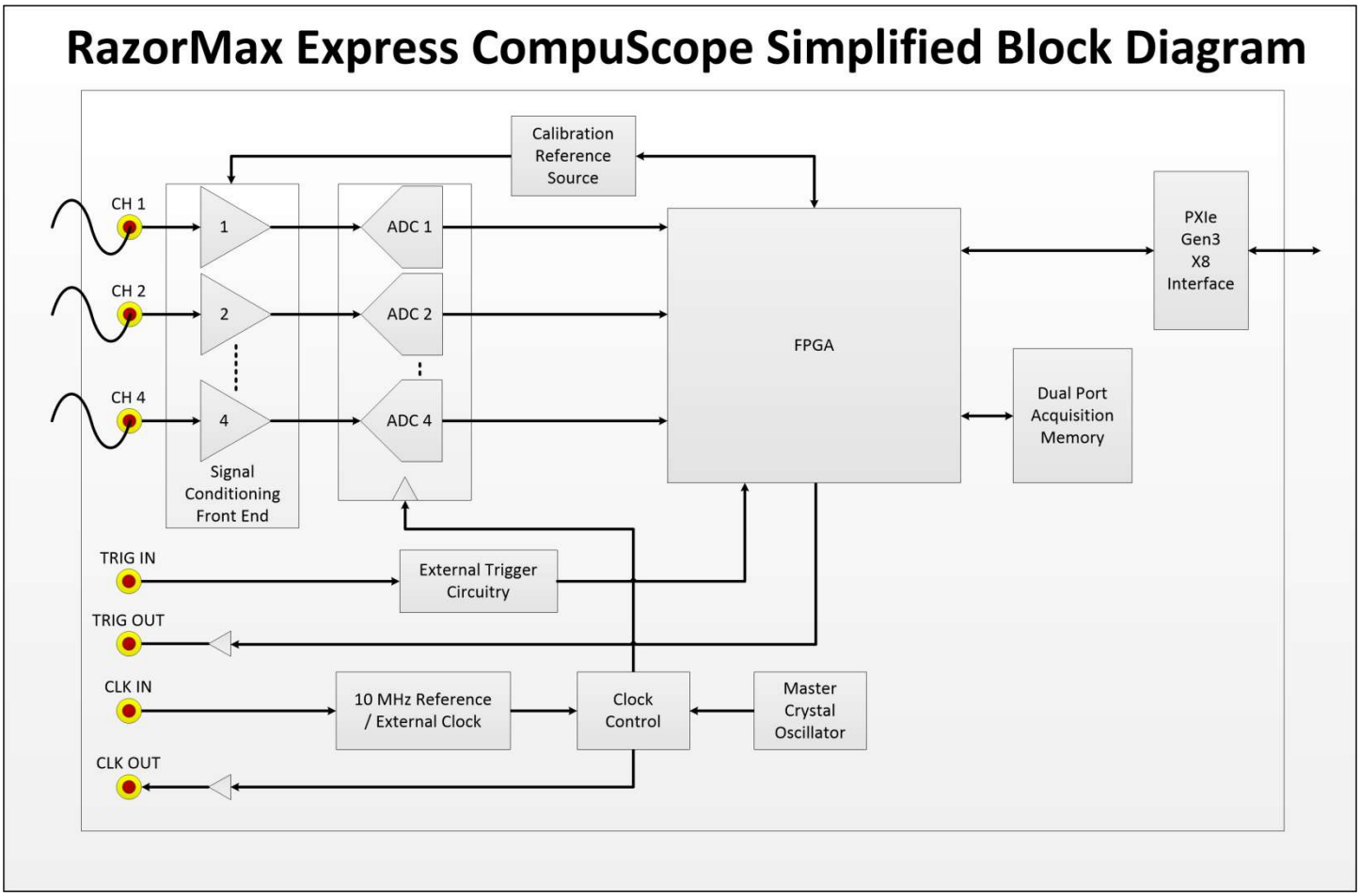
Life Sciences

Particle Physics

FEATURES

- 16-Bit Vertical A/D Resolution with 4 or 2 Digitizing Input Channels
- 1 GS/s or 500 MS/s Maximum Sampling Rate per Channel
- 31 Software Selectable Sampling Rates from 1 kS/s to 1 GS/s
- Optional ADC Modes: Decimate-by-2 Filter, Decimate-by-4 Filter with Digital Mixer, Decimate-by-4 Filter with IQ Outputs
- 700 MHz Bandwidth @ 1 GS/s or 350 MHz Bandwidth @ 500 MS/s
- 4 GS (8 GB) Onboard Sample Memory Standard
- FPGA Based Applications for Real-Time DSP Functions
- Dual Port Memory with Sustained PXIe Gen3 Data Streaming at 4+ GB/s
- Full-Featured Front-End with DC Coupling (AC Optional) and 50 Ω Inputs
- Ease of Integration with External or Reference Clock In & Clock Out
- External Trigger In & Trigger Out
- 3U PXIe Generation 3.0 x8 Single-Slot 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

RazorMax Express CompuScope Simplified Block Diagram



MAIN SPECIFICATIONS

Model #	:	CSX16502	CSX16504	CSX161G2	CSX161G4
# of Input Channels	:	2	4	2	4
Vertical A/D Resolution	:	16-bit	16-bit	16-bit	16-bit
Max. Rate per Channel	:	500 MS/s	500 MS/s	1 GS/s	1 GS/s

A/D SAMPLING

Rates per Channel, Model dependent (software selectable)	:	1 GS/s, 875 MS/s, 800 MS/s, 750 MS/s, 650 MS/s, 600 MS/s, 525 MS/s, 500 MS/s, 425 MS/s, 400 MS/s, 375 MS/s, 325 MS/s, 300 MS/s, 250 MS/s, 200 MS/s, 100 MS/s, 50 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
Rate Accuracy	:	±1 part-per-million (0° to 50° C ambient)

Optional ADC Modes (Consult Factory)

Decimate-by-2 Filter	:	DDC block providing decimation FIR half-band filter with 41 taps for each ADC channel.
Decimate-by-4 Filter with Digital Mixer	:	DDC block providing band-pass decimation filter with digital mixer and 3 concatenated FIR filters.
Decimate-by-4 Filter with IQ Outputs	:	DDC block providing a fixed digital f_S / 4 mixer with IQ pass band approximately at ±110 MHz centered at f_S / 4 with 41 taps for decimation filter.

ACQUISITION MEMORY

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

Standard Size	:	4 GS (8 GB)
Architecture	:	Dual Port
Data Streaming	:	Yes

ANALOG INPUT CHANNELS

Connectors	:	SMA
Impedance	:	50 Ω
Coupling	:	DC (standard) or AC (option, consult factory)
Analog Bandwidth	:	DC to 700 MHz at 1 GS/s Sample Rate DC to 350 MHz at 500 MS/s Sample Rate
Voltage Ranges	:	±1 V (contact us for custom ranges)
DC User Offset	:	Spans Full Scale Input Range (FSIR) (software selectable)
Absolute Max. Input	:	±3 V (over-voltage protection included)

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	:	±5% of Full Scale Input Range of Trigger Source. Signal amplitude must be at least 10% of full scale to cause a trigger to occur. Smaller signals are rejected as noise.
Post-Trigger Data	:	32 points minimum. Can be defined with 32 point resolution.

EXTERNAL TRIGGER

Connector	:	SMA
Impedance	:	≈ 1k Ω
Coupling	:	AC
Bandwidth	:	>100 MHz
Voltage Range	:	0-3 V (unipolar)

TRIGGER OUT

Connector	:	SMA
Impedance	:	50 Ω
Amplitude	:	0 – TTL

CLOCK OUT

Connector	:	SMA
Signal Level	:	0 – 1.5 V
Impedance	:	50 Ω Compatible
Duty Cycle	:	50%
Output Modes	:	Maximum Sampling Clock Frequency or 10 MHz Reference Clock
Max. Frequency	:	1 GHz
Min. Frequency	:	250 MHz
10 MHz Reference Clock Mode Rate	:	10 MHz from Internal Reference

CLOCK IN

Connector	:	SMA
Signal Level	:	Minimum 0.2 V RMS, Maximum 0.5 V RMS
Impedance	:	50 Ω
Coupling	:	DC
Duty Cycle	:	50% ±5%
Input Modes	:	External Clock or 10 MHz Reference Clock
External Clock Mode Rates	:	Minimum 250 MHz, Maximum 1 GHz
External Reference Clock Mode Rate	:	10 MHz ±1000 ppm; the external reference time base is used to synchronize the internal sampling clock.
Variable/Inactive External Clock Mode	:	Supports variable rate k-clocking or inactive external clock, particularly useful for OCT applications.

MULTIPLE RECORD

Pre-Trigger Data	:	Up to FPGA Memory Size

TIME-STAMPING

Timing Resolution	:	One Sample Clock Cycle

DIMENSIONS

Size	:	Single Slot, 3U Height

POWER CONSUMPTION

Power	:	30 Watts (typical)

SYSTEM REQUIREMENTS

PXIe Slot	:	1 Free 3U Single Slot PXIe Gen1, Gen2 or Gen3
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	Input Bandwidth	Memory Size	Order Part Number
CSX16502	16-bit	2	500 MS/s	350 MHz	4 GS (8 GB)	RMX-X65-020
CSX16504	16-bit	4	500 MS/s	350 MHz	4 GS (8 GB)	RMX-X65-040
CSX161G2	16-bit	2	1 GS/s	700 MHz	4 GS (8 GB)	RMX-X61-G20
CSX161G4	16-bit	4	1 GS/s	700 MHz	4 GS (8 GB)	RMX-X61-G40

Front End Options

AC-Coupled Front End Option (Consult Factory)	RMX-FAC-001

Cable Accessories

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

eXpert FPGA Firmware Options

eXpert PCIe Data Streaming	STR-181-000
eXpert Signal Averaging	250-181-001
eXpert Fast Fourier Transform (FFT)	250-181-004
eXpert Optical Coherence Tomography (OCT)	250-181-006

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

900 N. State St.
Lockport, IL 60441-2200

Toll-Free (USA and Canada):
Phone: 1-800-567-4243
Fax: 1-800-780-8411

Direct:
Phone: 1-514-633-7447
Fax: 1-514-633-0770

Email:
prodinfo@gage-applied.com

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

www.gage-applied.com