Keysight Technologies
High-Speed Digitizers

Selection Guide

Keysight High-Speed Digitizers Technology Expertise

With its PXIe and AXIe high-speed digitizers, Keysight offers you a reliable partnership for your advanced developments.

Keysight unique technology uses proprietary ICs so you can take the most out of the ADCs and FPGAs integrated into the digitizer. On-board real-time algorithm in the FPGA allows fast detection of signal characteristics in various domains.

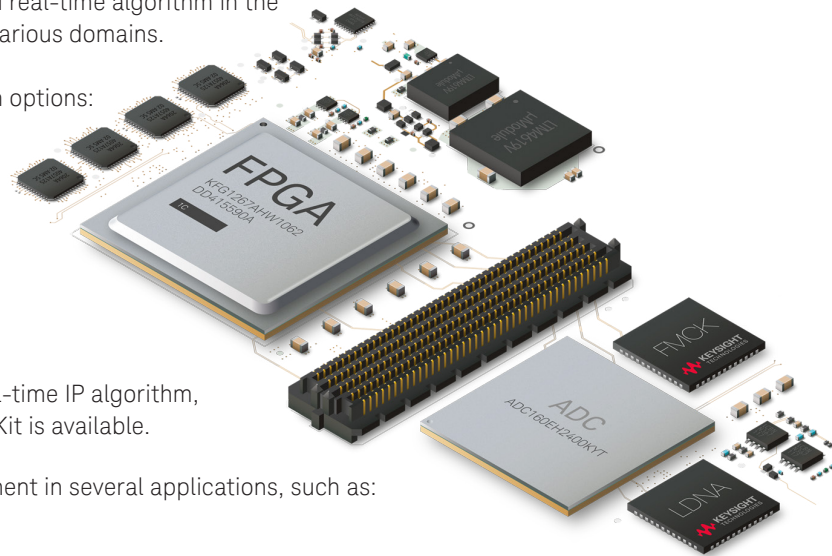We offer an extended range of firmware and application options:

– Firmware options: Specific real-time functions speeding-up your overall system response time, such as averager or digital down-conversion.
– Application options: Bundle including software and firmware for specific configurations targeting specific requirements, such as streaming & recording.

Moreover, if you need to integrate your own custom real-time IP algorithm, an additional software bundle, the FPGA Development Kit is available.

Keysight high-speed digitizer cards are used as component in several applications, such as:

– Aerospace & Defense: Radar and satellite
– Physics: Advanced and multichannel experiments
– RF Communication: 5G, wideband, MIMO

Whether your application requirements are clear or you are at the earlier stage of your selection, our digitizer specialists are there to help you define the best solution for your applications.

Added values

Better measurement fidelity and signal integrity

– Display deeper and sharper results
– Repeatability

Higher measurement throughput

– Speed to detection and decision
– Productivity

Smaller footprint

– Design for size and power optimization
– High channel density

Lower total cost of ownership

– Interoperability
– Reusability and upgradability
– Very high reliability
– Support and maintenance
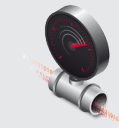
PXIe High-Speed Digitizers

NEW

Key specifications		M9203A
Product		PXIe 12-bit High-Speed Digitizer/Wideband Digital Receiver
Number of Channels		1 - 2 ch
Max. Sampling Rate		3.2 GS/s (1 ch) 1.6 GS/s (2 ch)
ADC Resolution		12-bit
Max. Bandwidth		DC to 2 GHz
Max. Memory		4 GB (1 GSa/ch)
FPGA Signal Processing		Xillinx FPGA
Full Scale Range (FSR)		Dual, 1 V and 2 V
Input Impedance		50 Ω
Form Factor		PXIe, 2-slot, fully shielded, built-in cooling system
Soft Front Panel (SFP) and Driver		Included
Operating System		Windows, Linux
Firmware options		
-DGT	Digitizer firmware	●
-INT	Interleaved channel sampling functionality	●
-FDK	Custom firmware capability	●
-DDC	Wideband real-time digital down-conversion	●
-TSR	Triggered simultaneous acquisition and readout	●
Applications options		
-CB0	Digitizer streaming and recording	●
-CB2	Digital down converter streaming at 1.6 GS/s	●
-BB1	High fideliy digitizer	●
Related softwares		
U5340A	FPGA Development Kit for High-Speed Digitizers	◆
U1092A-S0x	AcqirisMAQS Multichannel Acquisition Software	◆
W1462BP	SystemVue FPGA Architect	
89601B	89600 VSA Software, transportable license	◆
Related products		
M9019A	PXIe 18-slot Chassis, 3U, 24 GB/s	◆
M9021A	PXIe to PCIe Cable Interface	◆
M9048A	PCIe Deskstop Adapter	◆
M9036A	PXIe Embedded Controller	◆
M9037A	PXIe High Performance Embedded Controller	◆
M9393A	PXIe Performance Vector Signal Analyzer, 50 GHz	◆
M9362AD01	PXIe Quad Downconverter, 10 MHz to 50 GHz	◆

Added values

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– Repeatability

Higher measurement throughput

– Speed to detection and decision
– Productivity

Smaller footprint

– Design for size and power optimization
– High channel density

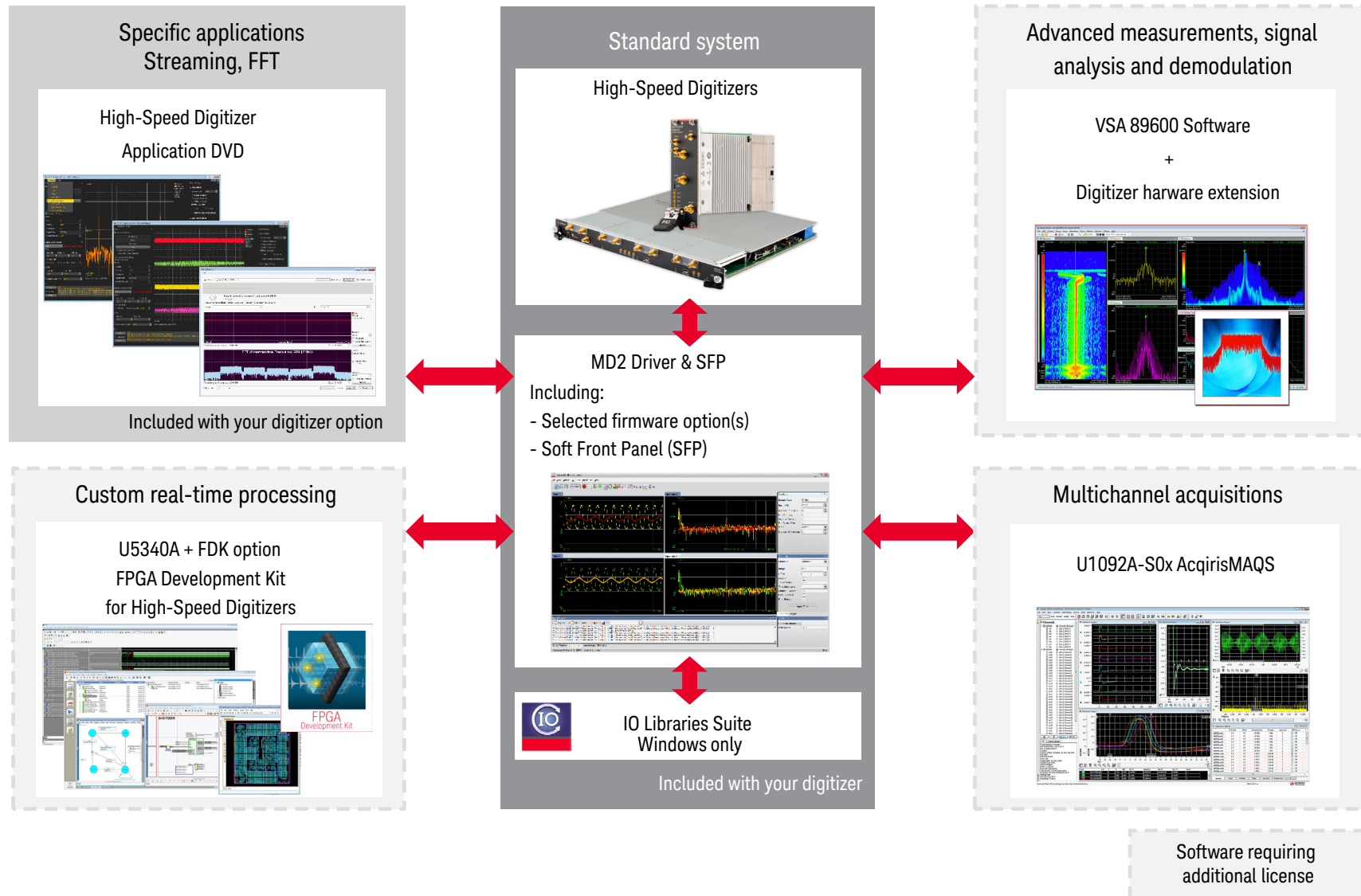### Lower total cost of ownership

– Interoperability
– Reusability and upgradability
– Very high reliability
– Support and maintenance

AXIe High-Speed Digitizers

Key specifications		M9703B	M9710A	M9709A
Product		AXIe 12-bit High-Speed Digitizer/ Wideband Digital Receiver	AXIe 10-bit High-Speed Digitizer/ DAQ	AXIe 8-bit High-Speed Digitizer/ DAQ
Number of Channels		4 - 8 ch	2 - 4 ch	32 ch
Max. Sampling Rate		3.2 GS/s (4 ch) 1.6 GS/s (8 ch)	10 GS/s (2 ch) 5 GS/s (4 ch)	1 GS/s
ADC Resolution		12-bit	10-bit	8-bit
Max. Bandwidth		DC to 2 GHz	DC to 2.5 GHz	DC to 500 MHz
Max. Memory		16 GB (1 GSa/ch)	8 GB (1.6 GSa/ch)	16 GB (512 MSa/ch)
FPGA Signal Processing		Xillinx FPGAs (4x)	Xillinx FPGAs (2x)	Xillinx FPGAs (4x)
Full Scale Range (FSR)		Dual, 1 V and 2 V	Dual, 250 mV and 1 V	Multiple, 250 mV up to 5 V
Input Impedance		50 Ohm	50 Ohm	50 Ohm
Form Factor		AXIe, 1-slot, fully shielded, built-in cooling system	AXIe, 1-slot, fully shielded, built-in cooling system	AXIe, 1-slot, fully shielded, built-in cooling system
Soft Front Panel (SFP) and Driver		Included	Included	Included
Operating System		Windows, Linux	Windows, Linux	Windows, Linux
Firmware options				
-DGT	Digitizer firmware	●	●	●
-INT	Interleaved channel sampling functionality	●	●	
-FDK	Custom firmware capability	●		
-DDC	Wideband real-time digital down-conversion	●		
-LDC	Limited real-time digital down conversion firmware	●		
-TSR	Triggered simultaneous acquisition and readout	● NEW		
Applications options				
-CB1	Digital down converter streaming at 1 GS/s	● NEW		
-CB2	Digital down converter streaming at 1.6 GS/s	● NEW		
-B01	Enhanced signal processing	● NEW		
Related softwares				
U5340A	FPGA Development Kit for High-Speed Digitizers	♦		
U1092A-S0x	AcqirisMAQS Multichannel Acquisition Software	♦	♦	♦
W1462BP	SystemVue FPGA Architect	♦		
89601B	89600 VSA Software	♦	♦	
Related products				
M9502A	AXIe 2-slot Chassis	Up to 16 ch 12-bit system	Up to 8 ch 10-bit system	Up to 32 ch 8-bit system
M9505A	AXIe 5-slot Chassis	Up to 40 ch 12-bit system	Up to 20 ch 10-bit system	Up to 96 ch 8-bit system
M9514A	AXIe 14-slot Chassis	Up to 104 ch 12-bit system	Up to 52 ch 10-bit system	♦
M9537A	AXIe High Performance Embedded Controller	♦	♦	♦

High-Speed Digitizer Software Platform

Specific applications Streaming, FFT

High-Speed Digitizer

Application DVD

Included with your digitizer option

Standard system

High-Speed Digitizers

MD2 Driver & SFP

Including:
- Selected firmware option(s)
- Soft Front Panel (SFP)

IO Libraries Suite
Windows only

Included with your digitizer

Advanced measurements, signal analysis and demodulation

VSA 89600 Software

+

Digitizer harware extension

Custom real-time processing

U5340A + FDK option
FPGA Development Kit
for High-Speed Digitizers

FPGA
Development Kit

Multichannel acquisitions

U1092A-S0x AcqirisMAQS

Software requiring
additional license

High-Speed Multichannel Data Acquisition Systems

The Keysight AXIe high-speed digitizer provides the ideal solution for advanced experiments in hydrodynamics, plasma fusion, particle physics, and aerospace & defense. With these modules you can build a large number of synchronous acquisition channels with unprecedented measurement fidelity in the smallest footprint. Advanced IP design, state-of-the-art technology and on-board real-time data processing are combined to achieve outstanding performance.

Build multi-channels data acquisition systems

Large systems can be built by simply populating a chassis with your choice of digitizers.

A selection of configurable companion products is also provided, including signal conditioning, chassis and controllers.

Moreover, the AcqirisMAQS Multichannel Acquisition Software, designed specifically for large scale experiments, enables configuration management as well as visualization of data for hundreds of channels from a single console.

Example configuration

Awards Earned by Keysight High-Speed Digitizers

Figure 1. Two M9703B AXIe 12-bit digitizers installed in the M9505A 5-slot AXIe chassis to form a 16-channel 12-bit acquisition system.

Figure 2. Five M9703B AXIe 12-bit digitizers installed in the M9505A 5-slot AXIe chassis to form a 40-channel 12-bit acquisition system.
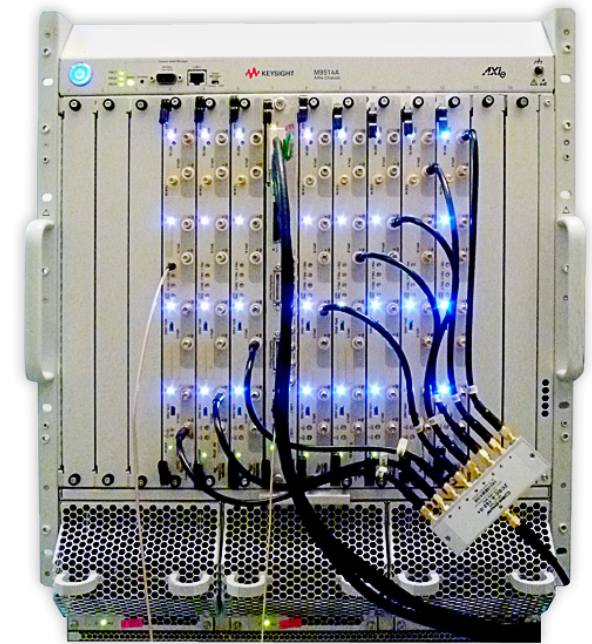

Figure 3. Eight M9703B AXIe 12-bit digitizers installed in the M9514A 14-slot AXIe chassis to form a 64-channel 12-bit acquisition system. Contact factory for possible configuration.

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