

Multichannel VSG-VSA advanced development solutions

Reference sheet



The multichannel VSG-VSA advanced development solutions (ADSs) offer user-customizable and turnkey embedded, multichannel vector signal generators (VSGs) and vector signal analyzers (VSAs) solutions for a wide range of applications requiring multichannel, high-speed, acquisition channels analysis.

Lyrtech offers the most versatile and integrated FPGA-based, multichannel analog-to-digital and digital-to-analog conversion systems on the market for advanced VSG and VSA development. How? Because they can be scaled according to FPGA processing and channel conversion analysis needs, because of its complete hardware-software tools integration, and because it supports the Simulink model-based design flow from The MathWorks.

Applications

- MIMO testbed prototyping
- Multichannel, high-speed instrumentation
- Medical imaging (PET, gamma-ray detection)
- Custom FPGA-based multichannel VSG-VSA applications

Fully integrated solution

- Multichannel recording and playback tools
- Host APIs for custom user applications
- Direct and remote access capabilities
- Powerful FPGA for multichannel, high-bandwidth processing
- Language-based design flow for custom FPGA implementation
- Real-time and hardware-in-the-loop co-simulation FPGA implementation
- Tools for real-time data exchanges with the host device CPU

Seamless model-based design integration

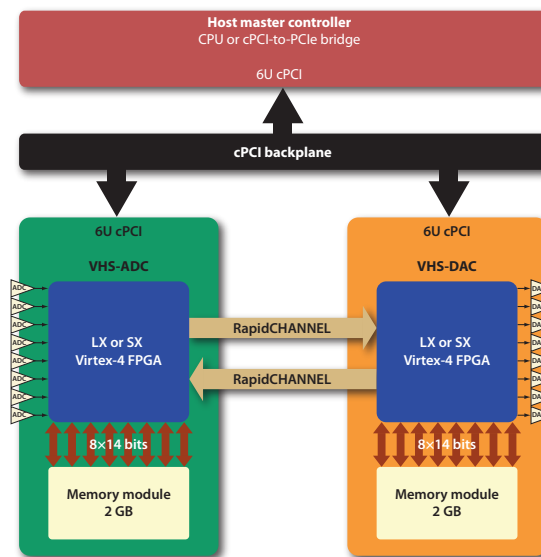
Lyrtech's multichannel VSG-VSA solutions are seamlessly integrated to the Simulink model-based design environment, making it simple to develop FPGA applications where programming is as easy as dragging IP blocks.

Highly scalable solutions

By being able to expand the solutions with the help of platforms or modules, a virtually unlimited number of processors and channels can be added and interconnected through high-speed, 8 Gbps, full-duplex links (RapidCHANNEL), making these solutions ideal even for the most demanding processing tasks.

Integrated to Diamond

Diamond from 3L enhances single-processor tools with a proven and simple multiprocessor model offering a level of abstraction that leads to efficient, coherent, reliable, and flexible systems. For details about this optional software solution, click [here](#).



Host analysis section

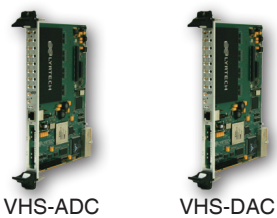
- Real-time data access to each VHS-ADC and VHS-DAC at 20 MBps
- User-friendly control interface for the VHS-ADC and VHS-DAC
- API for custom data analysis applications

Signal acquisition section

- Up to eight, 14-bit, 105-MSPS ADC channels
- One LX or SX Virtex-4 FPGA
- Memory module (2 GB) for simultaneous recording of the eight ADC channels at 105 MSPS
- Real-time data exchange interface with host CPU (20 MBps)
- External RapidCHANNEL TX and RX ports (8 Gbps)

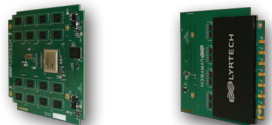
Signal generation section

- Up to eight 14-bit, 480-MSPS interpolated DAC channels
- One LX or SX Virtex-4 FPGA
- Memory module (2 GB) for simultaneous playback of the eight DAC channels at 480 MSPS
- Real-time data exchange interface with host CPU (20 MBps)
- External RapidCHANNEL TX and RX ports (8 Gbps)



VHS-ADC

VHS-DAC



Memory module ADC/DAC modules



Quad Dual-Band RF Transceiver



ADACSync

Solutions	Features	Models
VHS-ADC <ul style="list-style-type: none"> • ADCs at 105 MSPS-14 bit (x8) • Virtex-4 FPGA • 128 MB SDRAM • RapidCHANNEL 8 Gbps RX and TX ports • FPDP 400 MBps port RX/TX 	FPGA configuration	SX55 Virtex-4 FPGA AC-coupled analog I/Os: LSP130-611 DC-coupled analog I/Os: LSP130-621
		LX100 Virtex-4 FPGA AC-coupled analog I/Os: LSP130-612 DC-coupled analog I/Os: LSP130-622
		LX160 Virtex-4 FPGA AC-coupled analog I/Os: LSP130-613 DC-coupled analog I/Os: LSP130-623
	Model-based design kit (MBDK)	LSP130-810
	Memory module (2 GB)	LSP149-601
VHS-DAC <ul style="list-style-type: none"> • DACs at 480 MSPS-14 bit (x8) • Virtex-4 FPGA • 128 MB SDRAM • RapidCHANNEL 1GBps RX and TX ports • FPDP 400 MBps port RX/TX 	FPGA configuration	SX55 Virtex-4 FPGA AC-coupled analog I/Os: LSP144-601 DC-coupled analog I/Os: LSP144-611
		LX100 Virtex-4 FPGA AC-coupled analog I/Os: LSP144-602 DC-coupled analog I/Os: LSP144-612
		LX160 Virtex-4 FPGA AC-coupled analog I/Os: LSP144-603 DC-coupled analog I/Os: LSP144-613
	Model-based design kit (MBDK)	LSP130-810
	Memory module (2 GB)	LSP149-601

Options

Components	Features	Models
Quad Dual-Band RF Transceiver <i>To select this transceiver, you must select a DC-coupled analog I/Os solution</i>	<ul style="list-style-type: none"> • 4x4, 2.4 GHz/5 GHz MIMO RF front end • Allows generating and analyzing 802.11n MIMO signals 	LSP001-607
ADACSync	<ul style="list-style-type: none"> • Multichannel, precision, low-jitter clock generator (with GPS time base) • Offers pure time base and data time/position stamping functionalities 	LSP000-643
2U cPCI chassis system with cPCI-to-PCIe desktop expansion kit	<ul style="list-style-type: none"> • 2U, 4-slot cPCI chassis • cPCI-to-PCIe desktop expansion kit 	LSP000-615
2U cPCI chassis system with cPCI-to-PCIe laptop expansion kit	<ul style="list-style-type: none"> • 2U, 4-slot cPCI chassis • cPCI-to-PCIe laptop expansion kit 	LSP000-616
3U cPCI chassis system with cPCI CPU board	<ul style="list-style-type: none"> • 3U, 6-slot cPCI chassis • 2 GHz dual core cPCI CPU board • 2 GB RAM 	LSP000-617
6U cPCI chassis system with cPCI CPU board	<ul style="list-style-type: none"> • 6U, 8-slot cPCI chassis • 2 GHz dual core cPCI CPU board • 2 GB RAM 	LSP000-618

FOR MORE INFORMATION

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With over 25 years of experience delivering advanced digital signal processing solutions to companies worldwide, Lyrtech serves customers across the Americas, Asia, and Europe. Lyrtech offers a full range of DSP-FPGA development platforms, as well as product development services. Lyrtech works in partnership with such industry leaders as Texas Instruments, The MathWorks, and Xilinx to deliver unsurpassed quality and support to its large OEM customer base, which includes many prestigious names of the consumer electronics, telecommunications, aerospace, and defense fields. In a world where digital signal processing technology is vital to network and wireless communications, audio and video processing, as well as electronic systems in all fields of technology, Lyrtech is an ideal partner.

Lyrtech products are constantly being improved; therefore, Lyrtech reserves itself the right to modify the information herein at any time and without notice.

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