

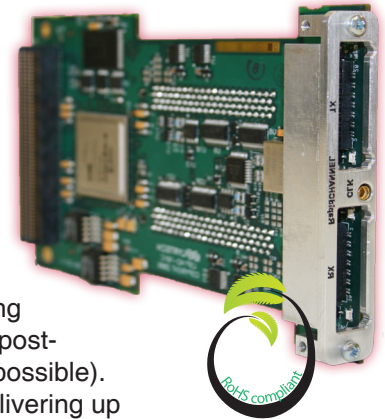
DRC module

Add-on for the SignalMaster Dual and SignalMaster Quad

The DRC module allows feeding and retrieving digital data to and from the [SignalMaster Dual](#) or [SignalMaster Quad](#) at high speeds. The two, 8-Gbps RapidCHANNEL ports (RX/TX) of the DRC module also allow interconnecting several carrier boards or interfacing a carrier

board with other RapidCHANNEL I/O boards such as [VHS-ADCs](#) and [VHS-DACs](#) (multichannel, high-speed, cPCI conversion platforms).

The DRC module is equipped with an onboard Virtex-4 FPGA (LX25 or SX35) that allowing to preprocess incoming data before it is sent to the carrier board (post-processing from the carrier board is also possible). The module's FPGA is also capable of delivering up to 96 GMACS of FPGA-based digital signal processing power—unrivalled might at your fingertips.



AT A GLANCE

- Very-high-speed LYRIO+ module
- One RX and one TX RapidCHANNEL ports (8-Gbps raw data exchanges)
- Onboard preprocessing and post-processing LX/SX Virtex-4 FPGA
- Optional dual (RX/TX) FPDP-I/II ports
- Support for model-based design flow

The DRC module comes with a complete board software development kit that allows designing and testing complex algorithms. The module's integration to the model-based design tools for Simulink also make it possible to simultaneously design and test in real-time environments.

Stellar processing power



The 34,560 logic cells and 192 XtremeDSP slices of the Virtex-4 SX35 FPGA make meeting the highest processing demands surprisingly easy. The Virtex-4 family has some of the most advanced logic, highest performance, highest density, and greatest memory capacity of most other FPGA families.

Fastest board-to-board, easy-to-use interface

The RapidCHANNEL ports of the DRC module allow direct, sustained, full-duplex, 8-Gbps links between two platforms, which allows stacking SignalMaster Quads and SignalMaster Duals. It also allows collecting and transmitting multichannel data from VHS-ADCs and VHS-DACs.

Integrated to System Generator for DSP

The DRC module is fully integrated to System Generator for DSP from Xilinx, which allows using high-level abstractions that can be compiled automatically into the FPGAs without losing any performance over designs implemented with VHDL.



Specifications

LX/SX Virtex-4 FPGA	<ul style="list-style-type: none"> • Maximum 34,560 logic cells • Maximum 192 XtremDSP slices
RapidCHANNEL ports	<ul style="list-style-type: none"> • 1× TX, 1× RX • 8-Gbps per port • 8 LVDS data bits (500 MHz DDR and other control lines) <p><i>For details about the specifications of this Lyrtech port, contact info@lyrtech.com.</i></p>
Mezzanine communications interface	<p>LYRIO+ (x1), minimum 12 Gbps, full duplex</p> <p><i>For details about the specifications of this Lyrtech mezzanine communications interface, contact info@lyrtech.com.</i></p>
External digital clock	<ul style="list-style-type: none"> • Input impedance: 50 Ω • Supports TTL/LVTTL and CMOS/LVCMOS clocks • Maximum frequency 125 MHz
FPDP-I/II and GPIO-32 port option	<ul style="list-style-type: none"> • FPDP-I/II (x2)—400 MBps RX/TX (software configurable) • GPIO-32: 32 GPIOs directly routed to the onboard Virtex-4 FPGA of the module <p><i>This option forces the use of an additional slot in the cPCI chassis.</i></p>

Features

The DRC module offers the following features:

- Xilinx Virtex-4 FPGA (LX25 or SX35) offering unsurpassed capabilities and high-performance logic (×1)
- Onboard flash PROM simplifying booting the FPGA
- Sustained 8-Gbps RapidCHANNEL ports (1× RX, 1× TX)
- Array of tools to design complex algorithms for the module as block models with the popular MATLAB and Simulink
- Compatible with one of the most powerful IDE on the market—ISE Foundation
- Optional, software-configurable, 400-Mbps FPDP-I/II ports (×2)
- Optional GPIO-32 port with 32-bit header directly routed to the onboard FPGA (×1)

Software development tools

Lyrtech board support packages

The DRC module's flash PROM comes preloaded with an application that loads the FPGA of the add-on module when it starts. This application allows propagating data from the RapidCHANNEL/FPDP-I/II ports to the LYRIO+ interface and the configuration path, which, in turn, allows directly exchanging data to or from a SignalMaster Dual or SignalMaster Quad.

DRC BSDK (optional)

This board software development kit (BSDK) allows targeting the onboard FPGA of the module through ISE Foundation projects.

DRC MBDK (optional)

This model-based design kit (MBDK) allows targeting the onboard FPGA of the module through System Generator for DSP and Simulink.

Communication and configuration from the carrier board

The BSDK and MBDK of SignalMaster Duals and SignalMaster Quads, include the necessary software to transfer data between the carrier's FPGAs and the DRC module. They also come with a DSP APIs (for BSDK users) and blocksets (for MBDK users) to control the module.

Hardware options

FPGA packages

- **Light**—features an LX25 Virtex-4 FPGA
- **Advanced**—features an SX35 Virtex-4 FPGA

I/O packages

- **Without FPDP-I/II or GPIO-32 ports**—features no FPDP-I/II or GPIO-32 ports, using the equivalent of two cPCI slots (4 HPs) when on top of its carrier.
- **With FPDP-I/II and GPIO-32 ports**—features two FPDP-I/II ports and one GPIO-32 port, using the equivalent of two cPCI slots (8 HPs) when on top of its carrier. The 400 MBps RX/TX FPDP-I/II ports are software configurable. The 32 configurable GPIOs are directly routed to the DRC module's FPGA.

FOR MORE INFORMATION

Lyrtech Inc.

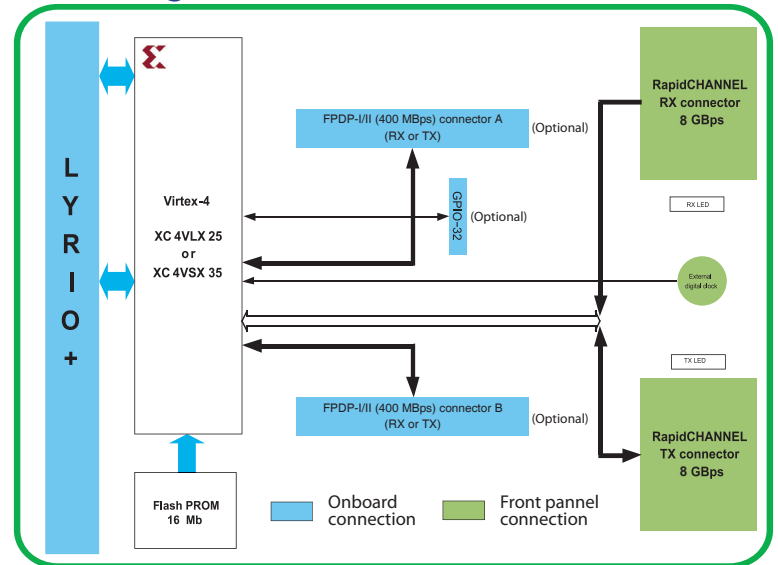
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Block diagram



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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