

RAVe module

Add-on for the SignalMaster Quad/Dual

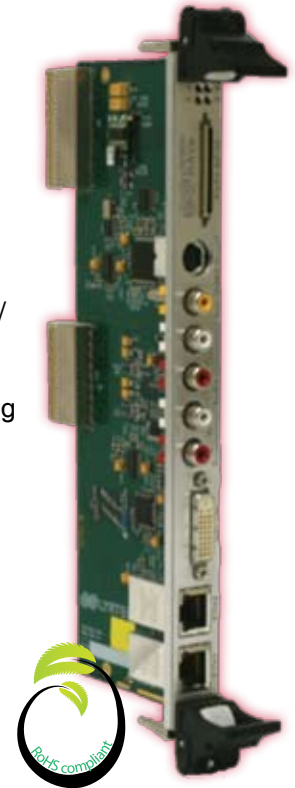
The RTM audio-video module (or RAVe) is a cPCI rear transition module for the Lyrtech SignalMaster Quad/Dual DSP-FPGA cPCI advanced development platform. The module features S-Video (Y/C) and composite (CVBS) video analog inputs that support NTSC, PAL, and SECAM; a DVI (digital only, no sub-VGA) video output; and two 16-bit audio I/Os. Its complete integration with the SignalMaster Quad/Dual software tools provides the most advanced development solution to design powerful DSP-FPGA-based audio/video digital signal processing applications.

AT A GLANCE

- NTSC/PAL/SECAM video analog input (1x)
- DVI (no sub-VGA) video output (1x)
- 16-bit audio ADC and DAC (2x each)
- Synchronized audio/video mode
- Hardware-integrated input video image scaler for various data rate emulation
- Support for model-based design flow

Applications

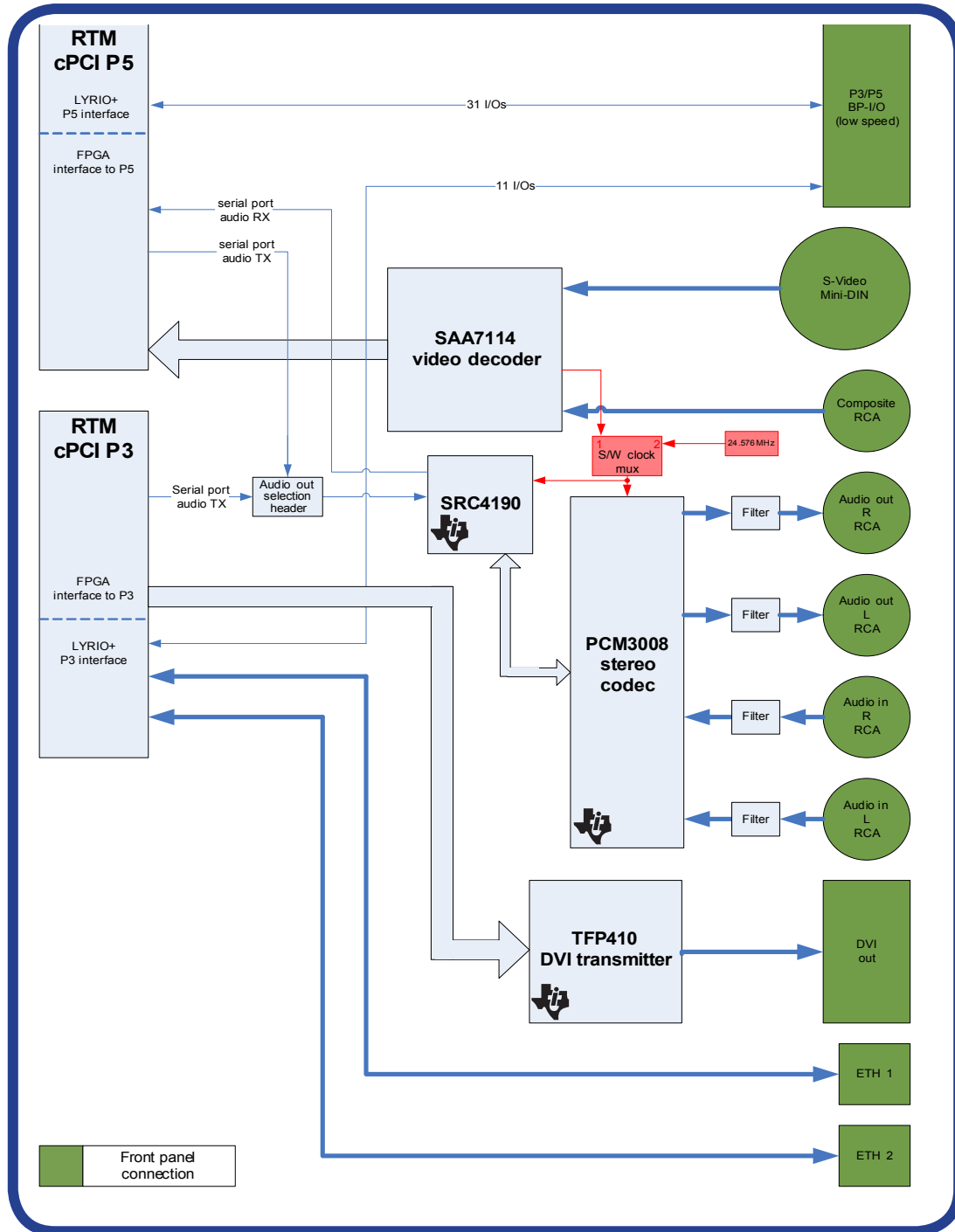
- DSP-FPGA-based image processing
- Wireless video/audio/data applications
- Next-generation video phone prototyping
- Video conferencing/broadcasting
- VoIP



Specifications

Video input (x1)	<ul style="list-style-type: none"> • Philips Semiconductors SAA7114 video decoder • Composite (CVBS) on RCA and S-Video on mini-DIN connectors • Support for PAL, NTSC, and SECAM • Two, 9-bit video CMOS ADCs • Adaptive PAL/NTSC comb filter • High-performance image scaling, zooming, filtering • VBI data slicer • 4:2:2 output mode (8-bit Y-Cb-Cr), 27-MHz ITU601 compatible • Audio clock generation for audio/video synchronous applications
Video output (x1)	<ul style="list-style-type: none"> • Texas Instruments TFP410 DVI transmitter • Supports resolution from VGA to SXGA (25 MHz–100-MHz pixel rates [maximum 1280 × 1024 pixels]) • RGB, 24-bit, single-edge input mode • Monitor detection
Audio input/output (x2)	<ul style="list-style-type: none"> • Texas Instruments PCM3008 stereo audio codec • 16-bit, delta-sigma, 48-kHz ADC and DAC • Anti-aliasing, LPF, and FIR filters included • 80 dB measured SNR on inputs and outputs • 8 Ω outputs minimum load • Coupled with SRC4190 sample rate converter: <ul style="list-style-type: none"> • Wide input-to-output sampling range: 16:1 to 1:16 • 128-dB dynamic range: BW from 20 Hz to $F_s/2$ • Attenuates sampling and reference clock jitter • Enables synchronization to other reference clocks such as video streaming
P3/P5 BP-IO (x1)	<ul style="list-style-type: none"> • Provided on SCSI-type interface connector: VDHCI (68 pins) • 31 low-speed control I/Os from P5 LYRIO+ interface, refer to the SignalMaster Quad or SignalMaster Dual specifications sheets • 11 low-speed control I/Os from P3 LYRIO+ interface, refer to the SignalMaster Quad or SignalMaster Dual specifications sheets • I²C interface from P5 FPGA interface, refer to the SignalMaster Quad or SignalMaster Dual specifications sheets • 3.3 V, 5 V supply available for external low-powered external device • The P3/P5 BP-IO interface is directly connected to the SignalMaster Quad's and SignalMaster Dual's LYRIO+ sites. Thus, a specific LYRIO+ add-on module is necessary to use this interface. At present, no LYRIO+ add-on modules use the interface.
Ethernet port (2x)	<ul style="list-style-type: none"> • RJ45 interface • Each Ethernet interface is directly routed to the LYRIO+ P3 interface <p><i>The Ethernet interfaces are directly connected to the SignalMaster Quad/Dual LYRIO+ site at the P3 interface. Thus, a specific LYRIO+ add-on module is necessary to use this interface. At present, no LYRIO+ add-on modules use this interface.</i></p>

Block diagram



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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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