**SOC** System-On-Chip Technologies

## Product Description

The SOC video over IP kit provides a product development platform for both Transmitter and Receiver Development. The kit provides both hardware and firmware/software, as well as a user development environment to allow users to implement required features. The Hardware include:

• VTR-2000 board, Fig. 1;
• H.264 video/audio encoder module (1080@60fps), Fig. 2;
• HD, 1080p@60fps digital camera, Fig. 3.

The Software/Firmware includes:

• VTR-2000 firmware Top level source code (VHDL);
• Ethernet/UDP/IP Network stack (10/100/1000Mbps);
• HDMI I/O drivers;
• HD/3G SDI I/O Drivers;
• Schematics (PDF) of VTR-2000.
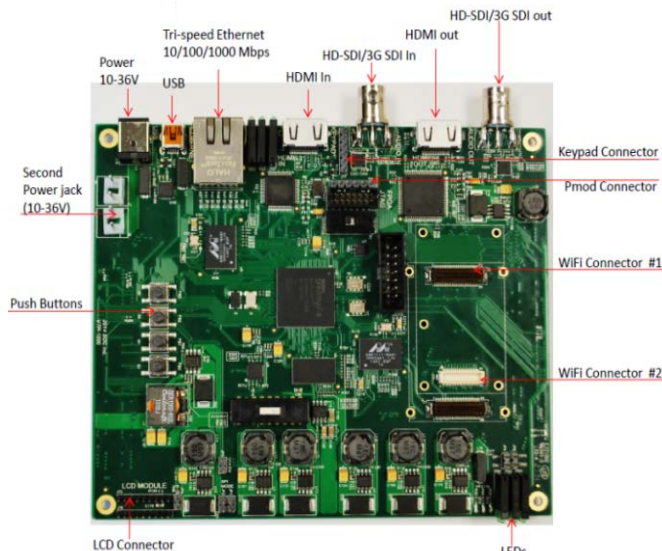


Fig. 1  The SOC VTR-2000 board



Fig. 2  The H.264 encoder module



Fig. 3  HD 1080p@60fps camera

## H.264 Encoder Specifications

• Standard:              H.264/AVC (ISO/IEC14496-10)
• Profiles:              High (Support Main, Baseline)
• Output bit rates:      1-80Mbps & above
• Video resolutions:     up to 1080p
• Frame Rate:            Up to 60fps
• Chroma Formats:        4:2:2 or 4:2:0
• Precision:             8 bits or 10 bits
• Output format:         Transport Stream or Elementary
• Video Input format:    YUV or RGB or
• Latency:               0.25ms (Min.)

## Block Diagram

Fig. 4 shows a block diagram of the video over IP product development kit. The video source can be any device that has an HDMI or SDI video output, with a camera included. An SOC H.264 video/audio encoder module is included in this kit. The Ethernet/UDP/IP network stack IP core for the LX45T FPGA on the VTR-1000 board is included in the firmware.

User required logics can be implemented in the Spartan-6 LX-45T FPGA on the VTR-2000. Contact SOC sales for details:

E-mail: sales@soctechnologies.com
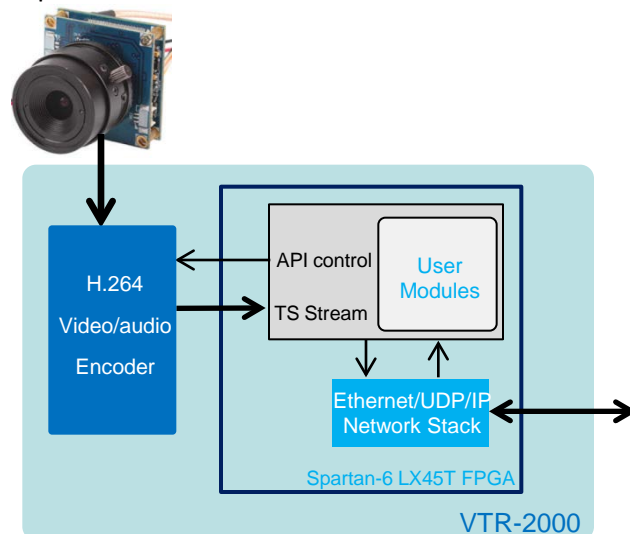
Telephone: +1 519 880-8609



Fig. 4  Block diagram of video over IP based on VTR-2000

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- VTR-2000 board, Fig. 1;
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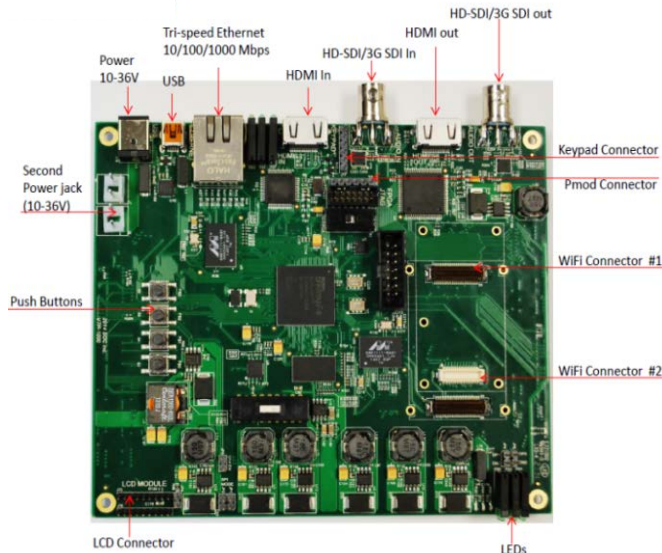Fig. 1  The SOC VTR-2000 board

## H.264 Decoder Specifications

- Standard:                    H.264/AVC (ISO/IEC14496-10)
- Profiles:                      High (Support Main, Baseline)
- Output bit rates:        1-80Mbps & above
- Video resolutions:      up to 1080p
- Frame Rate:               Up to 60fps
- Chroma Formats:        4:2:2 or 4:2:0
- Precision:                   8 bits or 10 bits
- Input format:             Transport Stream or Elementary
- Video output format: YUV or RGB or
- Latency:                      0.25ms (Min.)

## Block Diagram

Fig. 4 shows a block diagram of the video over IP receiver development kit. The transport stream can be sent to the VTR-2000 by a computer. An SOC H.264 video/audio decoder module is included in this kit. The Ethernet/UDP/IP network stack IP core for the LX45T FPGA on the VTR-1000 board is included in the firmware.

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Fig. 2  The H.264 decoder module
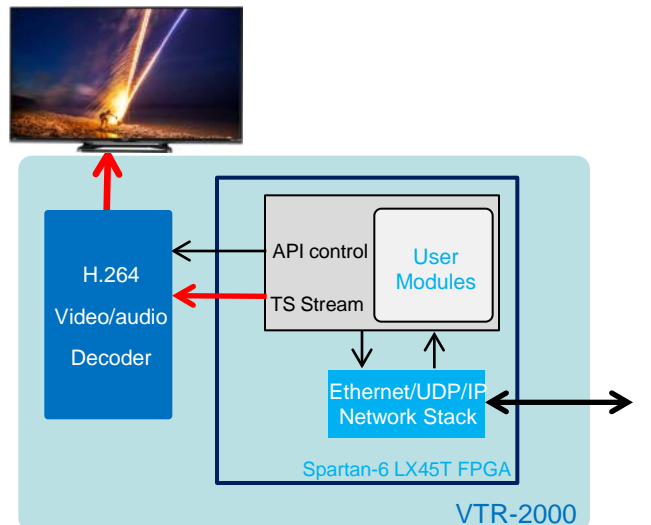


Fig. 3  HD 1080p@60fps Displayer



Fig. 4  Block diagram of video over IP receiver based on VTR-2000