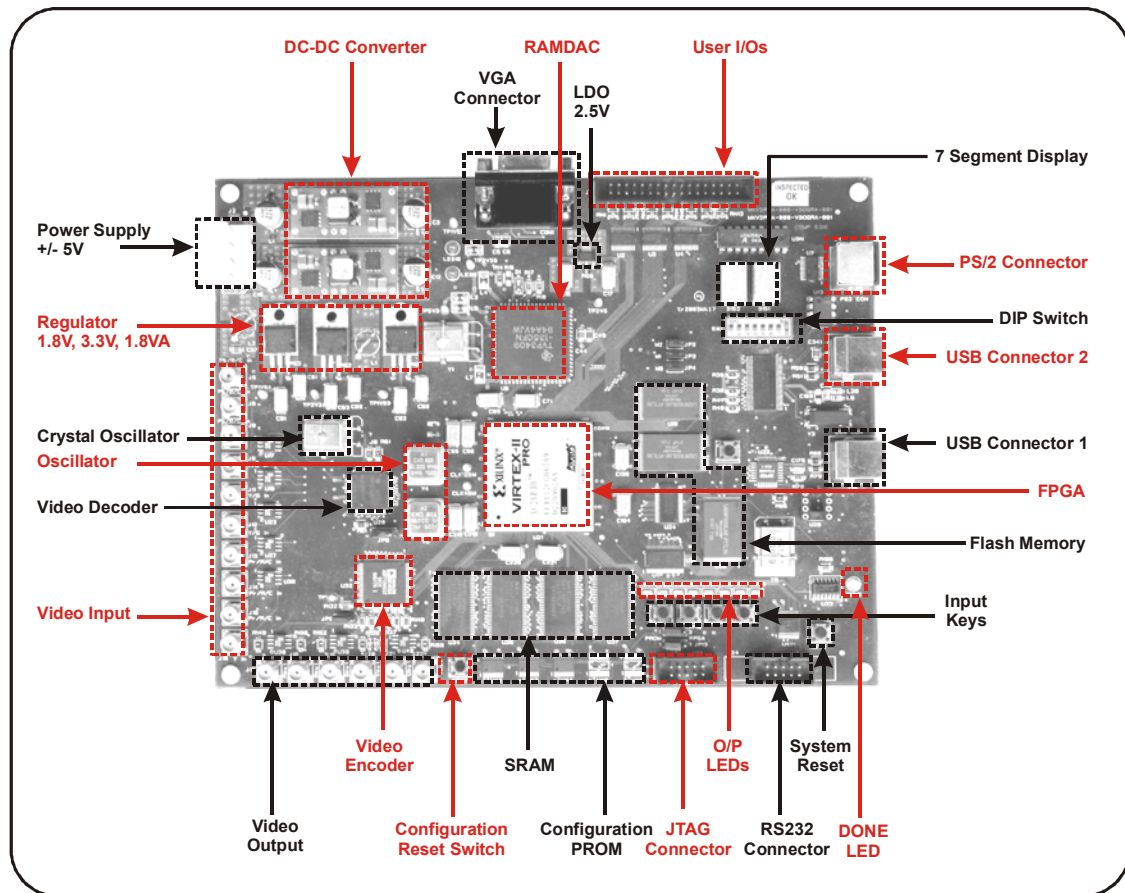


Photo of the entire system



Overview

Virtex-II Pro based video processing card offers a cost-effective platform for developing video and multimedia-based applications. With on board high speed video Decoder, Encoder; the board supports real time video processing of composite/ S-video/component video signals of NTSC or PAL standards. The on board SRAM and Flash memories may be used as data/code store for PowerPC or as video coefficient/data buffer(s).

The board supports two different modes of FPGA configuration.

Configuration through PROM and JTAG Port.

On board flash PROM's can be programmed through RS232 or USB port.

Further this platform is optimized for experimentation with 32-bit IBM PowerPC™ RISC processor core integrated into the FPGA fabric.

Target Applications

1. Image Processing.
2. Digital Video Processing.
3. Digital TV.
4. Video Capture.

5. Video Editing.
6. Multimedia.
7. Direct Digital synthesis.
8. I-Q Modulation.
9. Embedded systems.
10. Embedded microprocessor.
11. ASIC prototyping.
12. Data Storage.

Features

- FPGA - XC2VP30 in FF1152 package with one PowerPC.
- Memory –
 - 4 fully independent banks of 1M X 16 SRAM (NEC make uPD4416016)
 - 3 fully independent banks of 512K X 16 Flash PROM (Sharp make LH28F800)
- Serial Interface –
 - Two RS-232 channels (MAX3223)
- USB Interface –
 - 2 separate USB interface provided
 - 8Msps USB interface using FT245BM
 - 420Msps USB interface using CY7C68013
- Video input –
 - Ten channels using 10 bit Video Decoder (TVP5146)
 - Supports the analog-to-digital (A/D) conversion of component RGB and YPbPr signals, as well as the A/D conversion and decoding of NTSC, PAL, and SECAM composite and S-video into component YCbCr format.
- Video Output channels –
 - 6 Video Channels using 10 bit Video Decoder ADV7194
 - The ADV7194 can output composite video (CVBS), S-Video (Y/C), Component YUV or RGB and analog progressive scan in YPrPb format. The analog component output is also compatible with Betacam, MII and SMPTE/EBU N10 levels, SMPTE 170M NTSC and ITU-R.BT 470 PAL.
 - Triple 8-bit, 135MHz RAMDAC (TVP3409)
 - Supports 8-bit multiplexed operation that can be input on 16 pixel terminals.
 - Provide 24-bit graphics at up to 1024 x 768 screen resolution.
- User IO 's –
 - Maximum 28 IO's are available with XC2VP30 device.
- 8 user LEDs
- 2 Seven Segment Displays
- One 8 way DIP switch
- PS/2 Port Interface
- Power Supplies.-

- +/-5V are obtained from external Power supply.
- Power supplies required by FPGA, Encoder, Decoder etc are generated on board using DC-DC converters (PTH05010), LDO(LT1963) & Regulator (LM317)
- Configuration through
 - Platform flash PROMs
 - JTAG Port
- Clock oscillators
 - 2 Clock Oscillators for FPGA
 - Individual clock Crystals for USB, Decoder, RAMDAC.

PCB Specifications

- Eight layer board: Six signal planes and two power planes.
- Termination resistors for signal integrity issue.
- Special care for power planes of Video Encoder / Decoder and RAMDAC.
- Signal Integrity issues related to RAMDAC.