TriMeleon® DT1304 PC/104-Plus TriMedia Board

Video, Audio, and Telecommunication

The TriMeleon DT1304 Board is a compact, high performance board for video, audio and tele-communications applications. It integrates on a small area (standard PC/104 format) the Philips TriMedia® TM1300 Multimedia Processor, 32 Mbytes SDRAM, analog audio and video I/O interfaces including all necessary A/D and D/A converters.

With its compact, power saving and cost effective design, the board penetrates in regions previously reserved for expensive and difficult-to-program custom design DSP solutions.

Fields of Application

Fields of Application of the TriMeleon DT1304 Board include, among others:

- video compression and decompression, scrambling and descrambling

- video signal conversion (PAL to NTSC and vice versa)

- audio compression and decompression, scrambling and descrambling

- data encryption

- computer vision

- interactive terminals

- long-term recording and playback

- video phones

Philips TriMedia®

The Philips Trimedia Multimedia Processor (TM-1300 running at 143 MHz) has a VLIW DSP CPU core executing up to 5 parallel instructions in each cycle.

The instruction set includes split ALU and special multimedia instructions. On-chip caches and a 572 Mbytes/s data highway connecting peripheral interfaces with 16 or 32 Mbytes of SDRAM are designed for high volume multimedia data streams. A/D and D/A conversion is integrated on the board using dedicated components.

Thus, the board perfectly connects to commonly used analog multimedia devices like cameras, TV monitors and audio equipment.

Software

For many standard cases, off-the-shelf software components like

- video codecs H.261, H.263+, MJPEG, Wavelet

- audio codecs G.711, G.723.1, G.729

- software development environment SDE 2.1

are available at DResearch Digital Media Systems or Philips.

A hardware abstraction layer library ensures cross compatibility to other TriMedia based boards.

Profit from the experience of our TriMedia experts for a fast and a cost-saving development of your DT1304 application.

Technical Specification

- Philips TriMedia Processor TM1300, 143 MHz

- high performance CPU, 3 – 5 GOPS, VLIW SIMD DSPCPU

- PC/104-Plus bus interface

- PC/104 standard pass through interface

- available memory capacity: 16 or 32 Mbytes SDRAM, 32 bits wide, 143 MHz

- 8 analog video inputs (8 x CVBS or 4 x Y/C or 2 x Y/C and 4 x CVBS) PAL or NTSC with use of 2 video decoder

- automatic detection of video format, 50 and 60 Hz field frequencies

- PAL/NTSC video encoder with 3 DACs for analog CVBS, Y and C output

- analog video output (PAL or NTSC) for CVBS and Y/C or RGB

- 2 analog audio inputs, 2 analog audio outputs, 16 bit, up to 48 kHz sample rate, 8 x oversampling

- 4 general purpose logic level inputs

- 4 general purpose logic level outputs

- I²C bus

- JTAG IEEE 1149.1 debugging interface

- board size: standard PC/104- Plus card format (96 mm x 90 mm/ 3.8 in x 3.5 in)

System Structure

The TriMeleon DT1304 Board is very cost-efficient due to its low power design and a consistent use of cost-effective components.

Further, it can be used with customer PC/104 boards as a compact stand-alone system for multimedia applications.
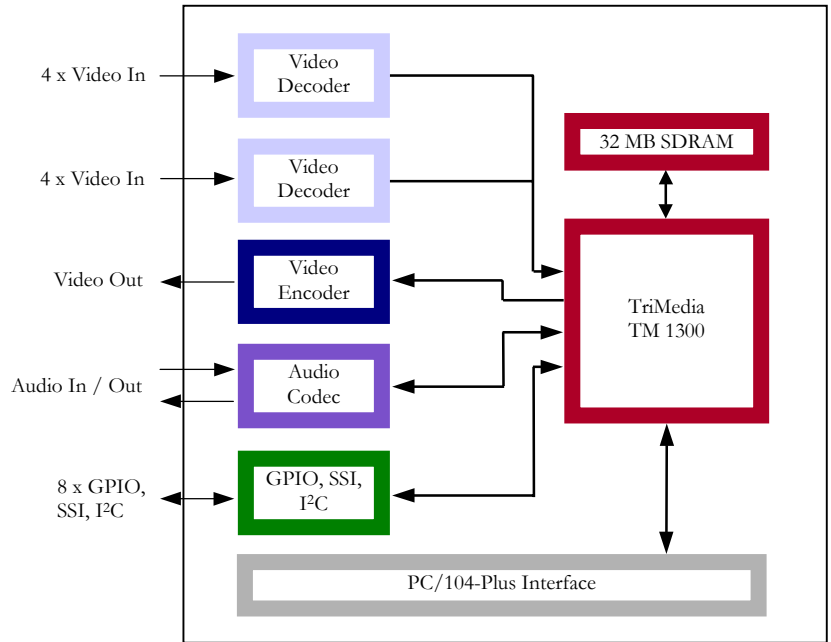
The TriMeleon DT1304 Board performs the video digitization, compression and synchronous audio processing. The tremendous CPU performance allows to implement computational-intensive compression algorithms to achieve previously unattained image quality at highest possible compression rates.