OZ745 - Zynq™ SoC Video Development Kit

The OZ745 is a video development platform based around the Xilinx® Zynq-7045 All Programmable SoC FPGA. The kit includes all the basic components of hardware, design tools, IP, pre-verified reference designs and Board Support Package to rapidly develop video and image processing designs. OmniTek also supplies software and firmware IP cores along with design services to further accelerate time to market.

Key Features

- Xilinx Zynq-7045 All Programmable SoC
- 5 x SD/HD/3G SDI I/O
- HDMI input and HDMI output
- Composite, Component, VGA and S-Video inputs
- SFP+ Cage e.g. for 10G Ethernet
- 10 x LVDS I/O e.g. for LCD flat panel display
- LCD flat panel power
- HPC FMC Expansion connector with 9 Tx/Rx
- Analogue and digital audio I/O
- Serial Ports
- 1G Ethernet (10/100/1000)
- 2 x USB on rear and additional 2 x USB header
- SD Card Slot
- FPGA and ARM JTAG debug ports

Xilinx Zynq-7045 SoC

FPGA Logic

- 218,600 LUTs
- 437,200 Flip-Flops
- 2,180 KB RAM (545 RAM x 36Kb blocks)
- 900 DSP Slices (18 x 25 bit MACCs)
- 16 x 6.6 , 10.2 or 12.5 Gb/s transceivers
- 2 GB (64-bit) DDR3-1600 SDRAM

Processor

- Dual ARM® Cortex-A9 MPCore - 1GHz (speedgrade -3); 667MHz (speedgrade -1)
- NEON Single / Double precision FP unit
- 32 KB instruction and 32KB data L1 Cache
- 512 KB L2 Cache
- 1 GB (32-bit) DDR3-1066 SDRAM
Evaluation Reference Design

The OZ745 board is delivered with an evaluation reference design (ERD) which recognizes and displays SDI, HDMI and analogue video inputs and displays a test pattern on the SDI and HDMI video outputs. The ERD provides a convenient way to test many of the board’s features and gives a skeleton design upon which users can build their own firmware and software applications. Source is provided to allow initial designs to be built up.

Real Time Video Engine

Also supplied is a demonstration of Xilinx RTVE 2.1 Reference Design, which has the OmniTek Scalable Video Processor IP (OSVP) at its core and performs de-interlace and resize of four video inputs, and composites them onto the video output. Control software runs on the ARM processor, which uses a Linux build with Qt graphics support. An OmniTek 2D Graphics IP core provides graphics acceleration. The control software generates a web page which can be hosted locally and composited over the video on the SDI, HDMI or LVDS flat panel display output and controlled via mouse and keyboard. Alternatively, the UI may be hosted on a remote web browser.

Deliverables

- OZ745 Video Development Platform
- Board Support Package – SD Card
  - Evaluation Reference Design
  - RTVE 2.1 Demonstration
  - Software Support
- Quick Start Guide
- Power Supply, cable & USB cable
- Documentation and Evaluation Source – download
- Full seat Vivado® System Edition, Device-locked to Zynq 7045 SoC

Options - available soon

- OZ745 6G/DP FMC – 4K/60P I/O option
- OZ745-ENC - EMC & FMC support enclosure

Software Support

- Linux build with Qt graphics
- Ability to program FPGA bitstreams and ARM software into flash memory
- Boot from flash, SD card or USB device
- Board BIST (Built In Self Test)