



Introduction

Video Scaler IP Core is an optimized RGB-video scaler which can enlarge or reduce input video frame to any aspect ratio. Video scaling is used in many video processing systems to scale/zoom the input video to required size.

Using the IP core, system designer can select defined area in input video and zoom it to the specified output size in their FPGA based video processing systems. It supports independent scaling ratios in both horizontal and vertical directions dynamically. It can be used in direct video streaming mode or frame buffer mode.

Video scaler architecture takes advantage of high-performance XtremeDSP slices available in Virtex-5 FPGA.

Features

- Support input-output resolution from QVGA (320 x 240) to SXGA (1280 x 1024)
- Independently programmable horizontal and vertical scaling factors
- Support real time video streaming and frame buffer processing
- Minimum selectable input area: 1 x1.
- Maximum selectable input area: 1280 x 1024.
- Minimum supported output area: 1 x 1.
- Maximum supported output area: 1280 x 1024.
- Number of taps supported : 2
- Number of phase supported : 8.
- Support Xilinx Virtex-5 FPGA target

Applications

- Post-processing block for image scaling
- Medical Endoscope
- Video Surveillance
- Consumer Displays
- Video Conferencing
- Machine Vision

Core Resource Utilization and Performance

Resource utilization after Place and Route in Virtex5 FPGA (XC5VSX50T-1FFG1136) is given in the table below.

Resource Type	Quantity Used
Slice Register	8033
Slice LUT	4453
Block RAM	24
DSP48E	21
Maximum Clock Frequency	170MHz

Verification

The core has been verified through extensive simulation and rigorous code coverage measurements using ModelSim and validated in Xilinx ML506 XtremeDSP development kit equipped with Virtex5 FPGA (XC5VSX50T-1FFG1136).

Standard Deliverables

- RTL source code in VHDL or post-synthesis EDIF/NGC netlist
- Sophisticated VHDL Testbench
- Simulation script, vectors, expected results, and comparison utility
- Product Datasheet
- Comprehensive User Guide with detailed application notes

Documentation

- Video Scaler v1.0 Datasheet
- Video Scaler v1.0 User Guide

Purchase and Technical Support

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