



Brightness Enhancer v1.0

Product Brief

Introduction

Brightness Enhancer IP Core is a video processing IP core used to enhance the brightness of input video stream. An improperly set brightness parameter results in poor picture quality reproduction, thereby straining human eyes. This renders brightness control an inevitable feature in video processing systems.

The Brightness Enhancer IP core aids system designers to implement this feature in miniature video processing systems using FPGAs. The brightness adjustment algorithm runs in RGB domain and provides designer the facility to separately tune the Red, Green & Blue brightness levels. The IP core is fully verified in ModelSim environment and validated in real hardware.

The architecture takes advantage of high-performance XtremeDSP slices available in Xilinx Virtex 5 FPGA.

Features

- Real time video processing
- Support for RGB 8:8:8
- 256 programmable brightness steps
- Pixel by Pixel Processing
- Requires only a single clock input
- Support input resolution from QVGA to SXGA
- Optimized for Xilinx Virtex-5 FPGA

Applications

- Medical Endoscope
- Consumer Displays
- Video Surveillance
- Video Conferencing
- Machine Vision

Core Resource Utilization

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

Resource Type	Quantity Used
Slice Register	78
Slice LUT	58
Block RAM	0
DSP48E	3
Maximum Clock Frequency	350 MHz

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

- Brightness Enhancer Datasheet
- Brightness Enhancer User Guide

Purchase and Technical Support

Network Systems & Technologies (P) Ltd,
A-3, Periyar, Technopark Campus, Kariyavattom,
Trivandrum, Kerala, India
Ph: +91-471 2527441
www.nestgroup.net