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NES-IPCORE-H264
IP CORE H264

▸ OVERVIEW

H264 Encoder for FPGAs and ASIC

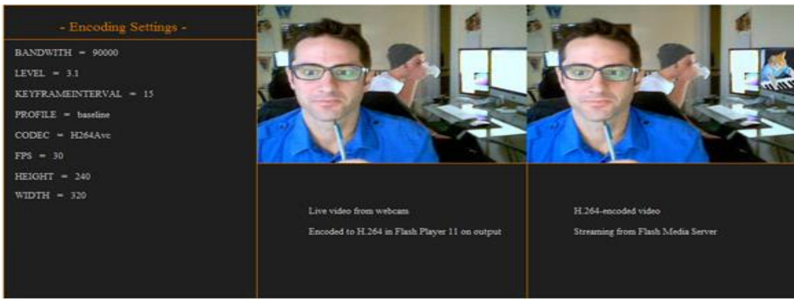
Small FPGA area utilization

Modular architecture allowing flexible implementations

Provided with verification environment

Based on vendor and technology independent VHDL code

Configurations available: Height, Width, Frame per second speed



- Encoding Settings -

BANDWITH = 90000
LEVEL = 3.1
KEYFRAMEINTERVAL = 15
PROFILE = baseline
CODEC = H264Avc
FPS = 30
HEIGHT = 240
WIDTH = 320

Live video from webcam
Encoded to H.264 in Flash Player 11 on output

H.264-encoded video
Streaming from Flash Media Server

▸ HIGHLIGHTS

H.264 is an industry standard for video compression. The H.264 standard is also known as MPEG-4 Part 10 and is a successor to earlier standards such as MPEG-2 and MPEG-4. An ITU standard for compressing video based on MPEG-4 that is popular, especially for high-definition video.

Taking advantage of today's high-speed chips, H.264 delivers MPEG-4 quality with a frame size up to four times greater. It can also provide MPEG-2 quality at a reduced data rate, requiring as little as one third the original bandwidths

Clock

1 Clock at 100 MHz and 1 Clock at 50 MHz

Encoding Settings

Support 30FPS and 60 FPS.
Different Video Size:
Max Resolution (5440X4080)
Standard 4K Definition (3840X2160)
Full High Definition (1920 x 1080)
Commonly Used High Definition (1280 x 720)
Standard Definition (640 x 480)
Internet-size Content (320 x 240)
The resolution can be customize

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Supported FPGAs

Any FPGA with sufficient number of LUTs and Dual-Port memory
FPGA families from the following vendors: Xilinx (AMD), Altera (Intel), Lattice, Microchip

Deliverables

Netlist for FPGA family and memory
User’s manual
Sample VHDL code that incorporates the core
Synthesis script for sample code

Some examples

Test 1: H264 YUV 4:2:2 compression:

Input video:
- resolution: 352x288
- Video format: YCbCr 4:2:2, 16 bits
- Frame number = 90
- Size = 18 247 680 bytes (352*288*16bits*90frames)

Output video:
- resolution: 352x288
- Size = 1 786 013 bytes
- Compression ratio = 90,2%
- Full compression time = approximatively 310 ms

Test 2: H264 YUV 4:2:2 4K compression:

Input video:
- resolution: 4K (3840x2160)
- Video format: YCbCr 4:2:2, 16 bits
- Frame number = 900
- Size = 14 929 920 000 bytes (3840*2160*16bits*900frames)

Output video:
- resolution: 4K (3840x2160)
- Size = 427 798 526 bytes
- Full compression time = approximatively 247s with 100 Mhz clock
- Compression ratio = 97,1%

ORDERING INFORMATION:

NES-IPCORE-H264   IP CORE H264 Encoder