

# Jointwave E440

## H.264 Encoder IP Core

### Baseline Profile Level 4.1

#### FEATURES

Resolution: 1920x1088@30fps

1280x720@60fps

1600x1200@30fps

Input: Hsync Vsync 16bits parallel data, YUV4:2:2

Output: NAL standard packets

GOP configuration: I, IP

I16x16 and I4x4 all intra prediction modes

Multiple inter prediction modes

CAVLC entropy encoding

Appropriate output rate: 12Mbps~24Mbps

Max output rate:30~50Mbps on FPGA platform

1/4 sub-pixel motion estimation

Mode Decision in 1/4 sub-pixel to get best quality

Hadamard transform for intra and inter prediction

Deblocking filter

External memory: 32bits DDR/DDR2

#### APPLICATIONS

- IP Camera or Digital Camcorder
- HD resolution videophone, video conference system
- Enhance video recording function
- IPTV setup box or camera
- Surveillance video encoding card, hard disk video recorder, network camera
- PC video encoding card, TV card

#### KEY FEATURES

- H.264 real time encoding
- Good quality, low stream rate
- Virtex5 FPGA platform:  
28K LUT LX 85  
125 MHz (max 233MHz)
- Cyclone3 FPGA platform:  
31K LE 3C55  
125MHz (max 152MHz)
- Stratix3 FPGA platform:  
25K LE SL50  
125 MHz (max 300Mhz)

#### COMPETITIVE ADVANTAGES

- Good video quality
- Low power
- Parameters of encoder are configurable, e.g. resolution, GOP, quality, rate.
- Low latency, real time encoding.
- Configurable search range
- Integrated with camera interface
- Integrated with cache for external memory, tolerates 4000 clock cycles latency
- Can be implemented as standalone solution, in which no extra CPU or software is required

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