

# Jointwave E640

## H.264 Encoder IP Core

### Main 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

CABAC entropy encoding

Appropriate output rate: 2Mbps~8Mbps

Max output rate: 100Mbps on ASIC platform

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: 16 or 32bits DDR/DDR2

#### APPLICATIONS

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

#### KEY FEATURES

- H.264 real time encoding
- High quality, low stream rate
- Rate is 40% of MPEG2 for equal quality
- ASIC platform: 510K logic gates  
200MHz, max 475MHz (0.09um)  
130mw (0.09um)
- Virtex5 FPGA platform:  
56K LUT 200MHz (max 233MHz)
- Cyclone3 FPGA platform:  
62K LE 150MHz
- Stratix3 FPGA platform:  
49K LE 200MHz (max 266Mhz)

#### COMPETITIVE ADVANTAGES

- Excellent 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
- Support OCP socket, easy to be integrated into SOC platform
- Can be implemented as standalone solution, in which no extra CPU or software is required

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