H.264 Hi422 High Performance Decoder

PRODUCT DESCRIPTION


The high performance solution is designed for scalability and modularity, targeting high end video contribution and professional video applications.

The decoder design is fully autonomous; does not require any external processor to aid the decode operation. The 10 interface comprises of an input FIFO and an output frame buffer. The decoder requires DDR2/3 SDRAM to store reference pictures. The decoder solution is available in both FPGA netlist and source code licensing models. CoreEL can also customize the core according to end application requirements.

Typical Application include:

- Video contribution & distribution decoders
- Integrated Receivers Decoders (IRDs)
- Video servers/play-out servers
- Test & measurement equipment
- News gathering (SNG/ENG)
- 3D Video
- High-end consumer electronics
- Medical
- Aerospace & defence
- Automotive

KEY FEATURES

<table>
<thead>
<tr>
<th>Decoder</th>
<th>Device</th>
<th>CABAC Decoder Bitrate</th>
<th>CA VLC Decoder Bitrate</th>
<th>SD (720 x 576) Frame-Rate</th>
<th>HD (1080p) Frame-rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Performance</td>
<td>Virtex-5 / 6</td>
<td>80 Mbps</td>
<td>160 Mbps</td>
<td>300 fps</td>
<td>60 fps</td>
</tr>
<tr>
<td></td>
<td>Kintex-7</td>
<td>80 Mbps</td>
<td>160 Mbps</td>
<td>300 fps</td>
<td>60 fps</td>
</tr>
<tr>
<td></td>
<td>Spartan-6</td>
<td>40 Mbps</td>
<td>80 Mbps</td>
<td>150 fps</td>
<td>30 fps</td>
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<td>Regular Performance</td>
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</tbody>
</table>
● Supports High profile decoding (4:2:2 10-bit support)
● Supports Main & Constrained Baseline Profile decoding (4:2:0 8-bit support only)
● Colour bit depth up to 10 bits
● 4:2:0 and 4:2:2 chroma format support
● Supports resolutions up to Full HD (1920x1080)
● Supports progressive and interlaced formats
● Field tested and proven in various customer applications
● H.264 decoder has been validated in hardware using
  ■ Conformance streams from ITU-T
  ■ Syntax, Stress and Pathological Test streams from Fraunhofer Institute
● Frame-rate up to 60 fps for progressive Full HD decode
● Single chip FPGA solution
● Scalable for higher bitrate support
● Simultaneous multi-channel decode
● Easy to integrate and hence faster time-to-market

PART NUMBER(S)

The following variants of this IP core are available:

<table>
<thead>
<tr>
<th>Part Numbers</th>
<th>Variants</th>
</tr>
</thead>
<tbody>
<tr>
<td>CI1010</td>
<td>H.264 Hi422 High Performance Decoder</td>
</tr>
<tr>
<td>CI1011</td>
<td>AVC Intra 50 (Hi10 Intra Profile)</td>
</tr>
<tr>
<td>CI1012</td>
<td>AVC Intra 100 (Hi422 Intra Profile)</td>
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<tr>
<td>CI1013</td>
<td>H.264 Entropy Decoder</td>
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