PowerVR Video Decoder
IP Core Family

PowerVR™ Video Decoder IP cores offer the industry's most comprehensive family of video decoders, provided as fully synthesizable RTL. The cores decode video from the bit stream level and provide all the bit stream parsing and functions required by various video standards to produce output video.

PowerVR video decoders are multi-standard and multi-stream and include several advanced features, including full support for H.265 (HEVC), with Main, Main 10 and Main Still Picture profiles at both Main and High tier.

They offer a highly configurable, flexible design, to ensure all needs from low area to high performance can be met.

### Features
- Full hardware decoding from ES to video
- Full support for 10 bit formats
- Support for 4:4:4, 4:2:2 & 4:2:0 formats
- Full multi-standard solution
- Highly configurable design

### Benefits
- High performance 4K60 support
- UHDTV
- Low power consumption
- Low silicon area
- Easily targetable for multiple applications

### Applications
- Smartphone and tablet
- UHDTV and other CE
- Miracast/wireless display
- Network SoCs
- DSCs
- Automotive
- Broadcast

### Comprehensive standards support

<table>
<thead>
<tr>
<th>Standard</th>
<th>Resolution</th>
<th>Frame Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>H.265 Main 10 @ L5.1</td>
<td>3840 x 2160</td>
<td>60</td>
</tr>
<tr>
<td>H.264 HP @ L4.2</td>
<td>1920 x 1080</td>
<td>60</td>
</tr>
<tr>
<td>VC1 AP @ L3</td>
<td>1920 x 1080</td>
<td>30</td>
</tr>
<tr>
<td>Dual stream H.264 HP MVC (BD)</td>
<td>1920 x 1080</td>
<td>30</td>
</tr>
<tr>
<td>MPEG-4 ASP @ L5</td>
<td>720 x 480</td>
<td>30</td>
</tr>
<tr>
<td>AVS Jizhun @ 6.0</td>
<td>1920 x 1080</td>
<td>30</td>
</tr>
<tr>
<td>MPEG-2 MP @ HL</td>
<td>1920 x 1080</td>
<td>30</td>
</tr>
<tr>
<td>MPEG-1 CPB</td>
<td>720 x 480</td>
<td>30</td>
</tr>
<tr>
<td>JPEG</td>
<td>&lt;32 Mpixels</td>
<td>–</td>
</tr>
<tr>
<td>Sorenson Spark</td>
<td>352 x 288</td>
<td>30</td>
</tr>
<tr>
<td>Real Video RV8/9/10</td>
<td>1920 x 1080</td>
<td>30</td>
</tr>
<tr>
<td>On2 VP6</td>
<td>1920 x 1080</td>
<td>30</td>
</tr>
<tr>
<td>WebM (VP8)</td>
<td>1920 x 1080</td>
<td>30</td>
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</tbody>
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### OS Support
- Windows, Linux, Android

### API Support
- Viddec (low level), OpenMAX IL, DXVA
Multi-standard

The efficient multi-mode hardware design enables the efficient decode of multiple different standards. By using a single hardware engine to perform the decode of all standards, the design offers lower risk, easier integration and better performance than discrete solutions for individual standards.

High Performance

As video moves into the 4K era, many features in addition to the improved resolution are also important. The improved colour fidelity of 10-bit resolution, and 4:2:2 / 4:4:4 colour space supported by the PowerVR video decoder cores, makes them ideal for demanding applications such as UHDTV (enabling solutions to meet ITU-R Recommendation BT.2020), wireless display and automotive. The high frame rate capabilities, allow for faster than real time decoding (e.g. 1080P120), ideal for use in transcoding and video editing.

Low Power Consumption

Advanced power management techniques including block- and register-level clock gating ensure that the minimum amount of logic is powered for each video standard. This ensures that the cores have low power requirements enabling high-definition video to be brought to power-constrained devices such as portable media players and mobile phones.

Single, Dual and Multi-stream

The cores can be configured on a time division multiplex basis to handle single, dual and multi-stream decoding. This allows functions such as picture-in-picture and multi-picture menus.

Software Support

PowerVR video decoders have low overhead host CPU software drivers supporting the video standards through a single easy to use interface. The drivers are in ANSI C code and are easily ported to a wide range of operating systems.

The firmware for the stream manager is provided as part of the product deliverables. Industry standards such as Gstreamer and OpenMAX IL are supported.

Ease of Integration

All our IP platforms are designed to be easily integrated into a wide range of SoCs. They are system latency tolerant, with low memory bandwidth loading and excellent power management.