

H.264 Compression IP Core 2009

Optimised for CCTV / Megapixel Video Cameras

CCTV and Megapixel video cameras used for continuous recording demand high quality compression in real time. This can be performed by an inexpensive gate array at low power dissipation far more effectively than expensive high power general purpose computers.

H.264 is the compression technology of choice: not only does it have one of the best compression ratios for the same quality of image, but also the bit-precise decoding transform specified in the standard removes many of the prediction artefacts found in other technologies.

The IP core in VHDL source code from J2K Video Ltd can be customised to specific application. It consists of a number of components to perform specific operations, plus logic to tie them together. This document covers the "H.264 compression IP Core 2009" for progressive video.


The design has been designed around standard gate array devices, but can be compiled for any other device if required.

<i>Typical parameters (based on standard gate array)</i>	
Pixel Rate (sustained)	98 MHz
Power dissipation (dynamic) (excludes RAM and I/O)	< 300 mW
Slices (basic option)	4426

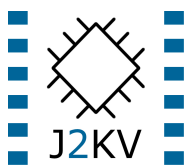
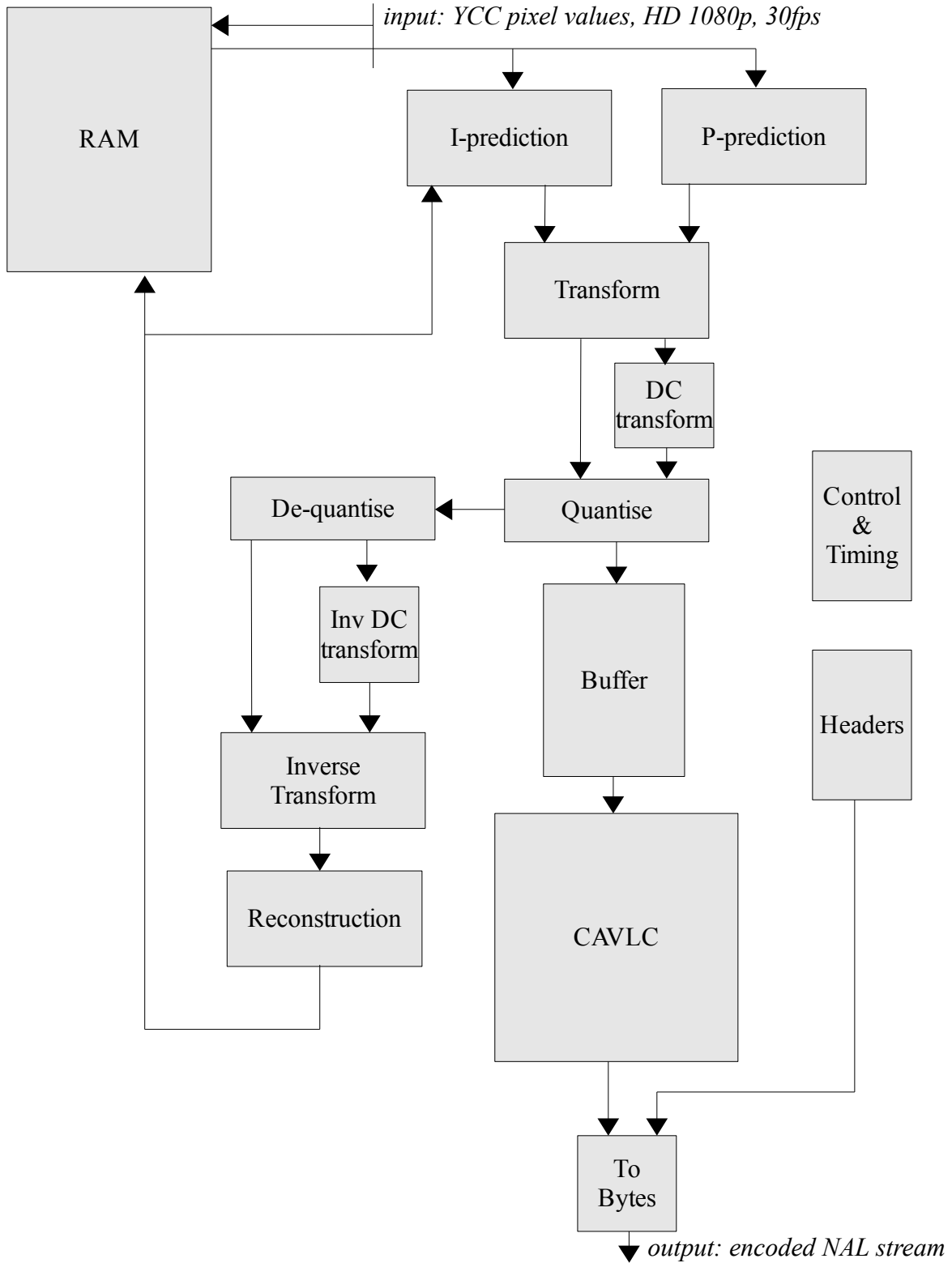
The 98MHz pixel rate allows Full HD 1080p (1920x1080) @ 30 fps or higher resolutions such as 8 megapixel at 8 fps. Compression is possible up to the maximum allowed in the H.264 standard.

The components are independently upgradeable for special applications. A choice of Intra Prediction and P-Prediction modules are available on request, and customised modules may be developed to customer requirements. For rapid realisation, i-frame only solution will be released initially with p-frame provided as a future upgrade if required.

Multiple streams may be simultaneously encoded by the H.264 encoder; these may be of different resolutions. There is no design limit to the video resolution.

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DATASHEET



Principal components in H.264 IP Core 2009 encoder

Note that RAM is usually implemented off-chip