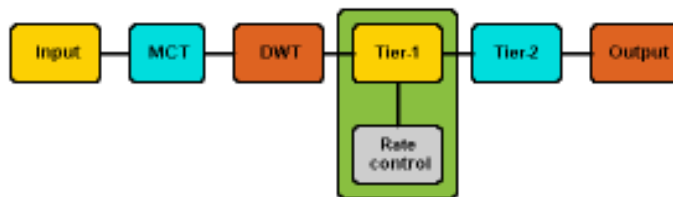




JPEG2000 Library

Overview

Image encoding process can be represented as shown in the figure below. It consists of five main stages: input image processing, multicomponent transform, wavelet transform, tier-1 and tier-2 processing and output file generation.



The Input unit performs input image file reading and decoding. This module actually should be considered as an interface module and should not be treated as part of JPEG2000 encoder.

Current version of encoder supports the following list of input image formats:

- Grayscale images (8 bits per pixel, 256 levels of gray)
- Color RGB images (24 bits per pixel)
- Color YUV 4:4:4 images (24 bits per pixel)
- Color YUV 4:2:2 images (24 bits per pixel)
- Color YUV 4:2:0 images (24 bits per pixel)

The **Multicomponent transform module** supports converting of input RGB image into YCrCb color space when used with 9/7 filter (Irreversible Color Transform), and into the special color space (Reversible Color Transform, see ISO_IEC_15444-1 2000(E)) when used with 5/3 filter. For Grayscale and color YUV images the MCT encoding stage is omitted.

The **Discrete Wavelet transformation module** supports both standard wavelet filters recommended by ISO JPEG2000 - reversible 5/3 and irreversible 9/7.

The **Tier-1 module** provides encoding of resulting DWT coefficients with dynamic rate allocation control. Tier-1 uses original Passes allocation algorithm and implements single-pass-fidelity allocation method.

The **Tier-2 module** performs zero-tree encoding and JPEG2000 final output stream generation.

The **Output module** provides the output interface and, as the input module, does not belong to the JPEG2000 encoding algorithm.

