DResearch SpeedWave

Image data compression and decompression library

DResearch SpeedWave is an innovative, wavelet-based software library for compression and decompression of images and video streams. DResearch SpeedWave offers a quality, which gives you and your application the necessary advantage over your competitors.

Take advantage of these unique features and contrast with your competitors by using DResearch SpeedWave in your video application. An easy to use buffer interface facilitates the use of the library. DResearch SpeedWave is available as a library for TriMedia and for x86.

Features

- Optional lossless compression

- Preview capability: optional image decoding at half or quarter resolution in reduced computing time

- Very high compression speed compared with other wavelet-based compression libraries

- Complete PSNR-scaled stream: A high quality compressed image contains the image in each possible lower quality. A stream containing the image in a more compressed form is easily achieved by cutting off the stream. So there is no need to decode and encode a compressed image again, if a high-quality compressed image is needed in a lower quality and perhaps lower resolution

- Multiple compression and decompression does not change the image: An image compressed once with a fixed quality can be compressed without losses using the same quality parameter. Therefore, the encoding of the decompressed picture with the fixed quality parameter is lossless.

- Arbitrary image sizes up to 65536 x 65536
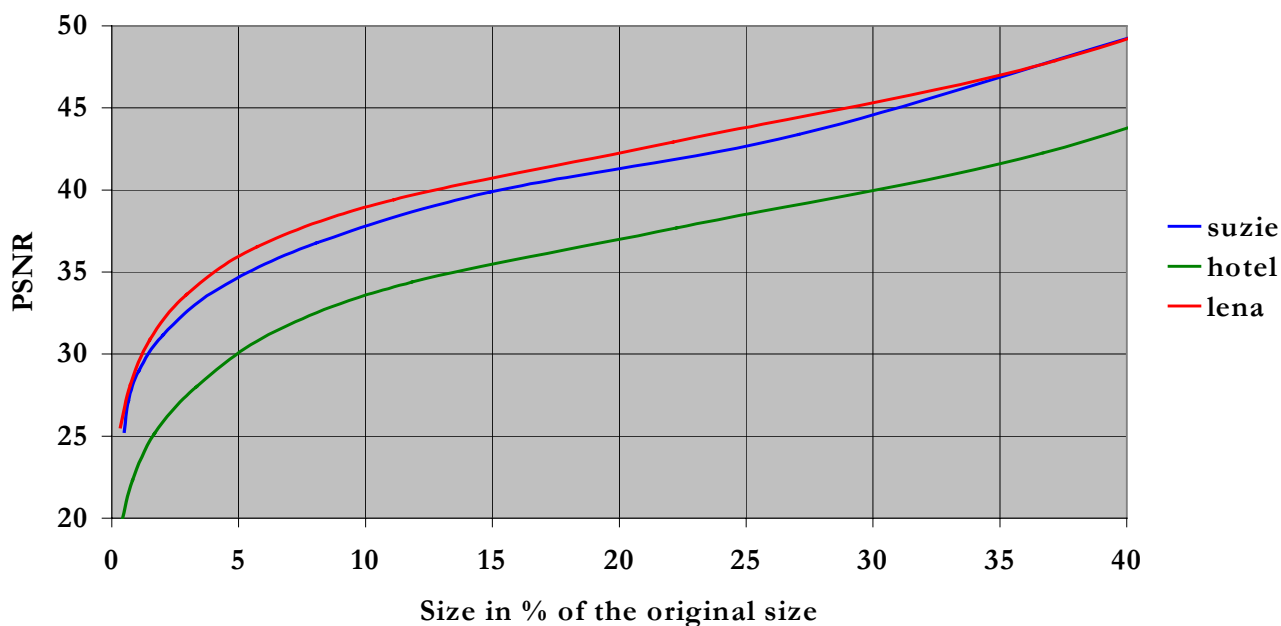

Original Bitmap, 1220 x 1196 Pixels

Compressed Image, Compression Rate 1:45

Original Photography: Mike Overstreet

Technical Data

Standard	none; proprietary procedure
Hardware platforms	Library for x86, library for TriMedia, shortly available as a TSSA-component
Compression technique	Wavelet transformation
Still image or video coding	Still image coding
Input formats	YUV420, YUV422, YUV400, self defined planar format
Image sizes	arbitrary image sizes from 64 x 64 up to 65536 x 65536, limited only by memory resources
Compression rate control	Quality parameter, guarantees constant image quality
Multiple instances possible	yes
Frame rate	Encoder: ca. 20-80 CIF (352x288, YUV420) on 143 MHZ TriMedia Decoder: ca. 10-50 CIF (352x288, YUV420) on 143 MHZ TriMedia depending on the chosen quality and the image content
Additional Features	lossless coding, preview at low resolution, PSNR-scaled stream offers the image in any lower bitrate

Compression performance for a few well known test images
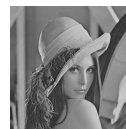

suzie:

Size: 352 x 288,
Color format: YUV420

hotel:

Size: 720 x 576,
Color format: YUV422

lena:

Size: 512 x 512,
Color format: RAW GREY

The compression rate is specified comparatively to the YUV format, the PSNR has been calculated in RGB-format.

Please ask for demo versions!