

## YUV Super Resolution Technology

Practical super-resolution for high-quality upscaling of video

Often, the original video resolution needs to be increased for proper display on the destination device.

We offer a practical super resolution solution for video upsampling that is superior to typical image resizing algorithms.



### Primary Applications

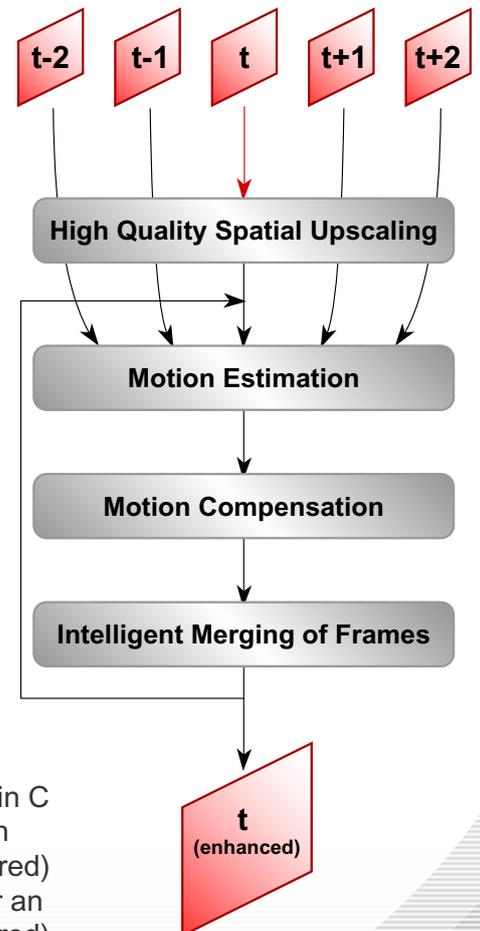
- Video transcoding including high-quality standard definition to high definition (SD-HD) conversion
- Flat-panel plasma and LCD displays
- Restoration of video
- Creation of high-quality still images from video
- Enhancement of low-quality video from web cameras and cellular phones

### Key Features

- Improvement of both objective and visual quality over that of static resampling algorithms
- Comparatively high speed
- Fully sequential processing available
- Fully automatic
- Adjustable speed/quality trade-off
- Special algorithm for noisy video

### Basic Deliverables

- Source code for a reference implementation in C
- C and assembly language source code for an implementation optimized for the PC (if required)
- C++ and assembly language source code for an implementation optimized for the PC (if required)
- Algorithm description
- Software description
- Verification instructions



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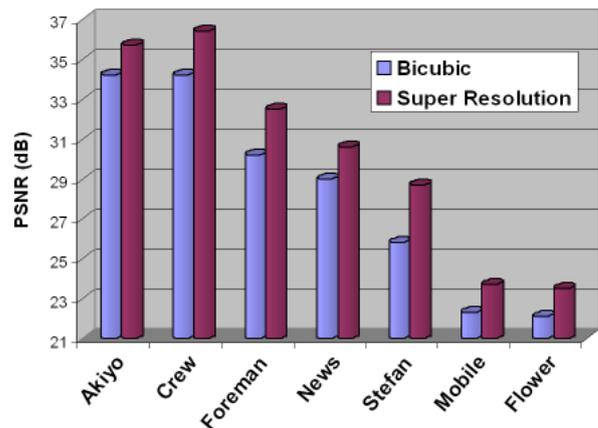
### Specification

- Best results for non-compressed video
- Fully automatic
- Controllable speed/quality trade-off
- Motion compensation
- Integer arithmetic
- Memory usage of approximately 30 bytes per pixel
- Fully sequential processing available
- Performance of non-optimized C reference model is 1.5 fps for SD-HD conversion on an Intel Pentium 4 2.8 GHz PC
- Ample potential for parallelization
- External spatial upscaling module may be used instead of internal module (this may be slightly detrimental to the results, however)

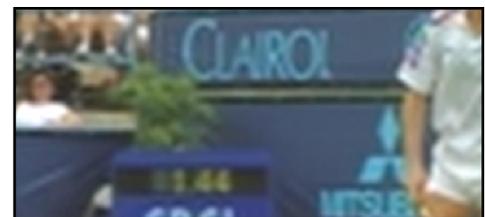
### Comparison with Competitors

- AviSynth Bicubic
- AviSynth Lanczos4
- Topaz Enhance Resampling

Bicubic vs. Super Resolution



AviSynth Bicubic



AviSynth Lanczos4



Topaz Enhance Resampling



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