

## YUV Contrast Technology

Intelligent selective enhancement of picture contrast and brightness

The task of increasing video contrast and brightness is often required in myriad applications. Common problems with less sophisticated solutions include severe post-processing damage or loss of detail in bright or dark areas, noise amplification and inefficiency of automatic correction.

Our solution effectively overcomes these obstacles.



### Primary Applications

- Television equipment
- DVD and HD DVD recorders
- Video CD/DVD/DivX players
- Digital camcorders
- Security surveillance systems
- Post-processing and restoration of video

### Key Features

- Applicable both to video and to static images
- One-pass real-time processing
- Fully automatic
- No effect on details in dark or bright areas
- Ready for hardware implementation

### 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)
- Algorithm description
- Software description
- Verification instructions



Dark unclear video

### YUV Contrast Technology

Bright, high-contrast video



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## YUV Contrast Technology

### Specification

- Applicable both to video and to static images
- One-pass real-time processing
- Fully automatic, adapts to brightness changes and scene changes
- Preserves details in dark and bright areas
- Prevents noise amplification
- Color correction feature prevents color distortion
- Edge correction features for suppression of Gibbs-like artifacts
- Requires two pass over frame to gather statistics
- Local sliding window processing during the second pass
- Memory usage as low as 50 kilobytes, regardless of frame size
- Performance of non-optimized C reference model is 52 fps for a CIF video on an Intel Pentium 4 2.8 GHz PC
- Ample potential for parallelization

### Comparison with Competitors

- Adobe Premiere
- Adobe After Effects
- Adobe Photoshop (still images only)



### Our Advantages

- Preservation of details in dark and bright areas
- No color distortions