Visicron Broadcast
Bandwidth-Scalable
Wavelet Codec

Visicron Corp.
http://www.visicron.com/
2003
Bandwidth-Scalable Broadcasting

System specific

- **Broadcasting goal**: one user is broadcasting many are receiving

- **Base problem**: different users has different network bandwidth

- **Ordinary solution**: use frame-independent codec and adapt framerate to each user

- **Visicron-II solution**: use Codec with Bandwidth-Scalable Codec Architecture based on Wavelets
Comparison with Motion-JPEG-like codecs

- PSNR measure is used for quality comparison (general measure for codec comparison)
- Average frame size is used for size comparison
Comparison with Motion-JPEG-like codecs

Frame sizes for different codecs

Advantage in compression for blue codec

Equal quality line
The higher – the better quality

Comparison with Motion-JPEG-like codecs

We compare our Visicron BSW codec with modern popular codecs:

- Morgan MJPEG v3
- Morgan MJPEG-2000 v1
- Pinnacle RealTime 2.5
- LeadTools MJPEG
- Matrox MJPEG
Comparison with Motion-JPEG-like codecs

Comparison on typical videoconference sequence

Motion JPEG Codec

Morgan-multimedia MJPEG codec on 200 Kbit, 10 fps

Motion JPEG-2000 Codec

Morgan-multimedia MJPEG-2000 codec on 200 Kbit, 10 fps
Visicron BSW Codec

Visicron BSW codec on 200 Kbit, 10 fps

Visicron BSW Codec
Advantages

- Highest scalability range:
  - With one broadcasting stream it is possible to make from 1 to 25 fps
  - Frame scalability is from 200 bytes per second. It is 10 times smaller beginning bandwidth than in MJPEG-2000 codec

- Business quality on ordinary internet bandwidth connection bitrate
## Codec Characteristics

<table>
<thead>
<tr>
<th>Frame Rate (P4-1700)</th>
<th>Up to camera limits</th>
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<tbody>
<tr>
<td>Average Bandwidth Used (at 320 x 240)</td>
<td>80 kbits on 5 fps</td>
</tr>
<tr>
<td>Compression Ratio</td>
<td>Up to 500:1</td>
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<tr>
<td>Compression Format Input/Output</td>
<td>RGB24, RGB32, UYVY, YUY2, V422, VYVU, YV12, I420, IYUV, CLJR, IF09</td>
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## System Requirements

<table>
<thead>
<tr>
<th>Operating system</th>
<th>Windows 95/98/ME/2000/NT/XP</th>
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<tr>
<td>Preferred CPU performance</td>
<td>700 MHz or greater</td>
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<tr>
<td>Preferred Camera</td>
<td>Any DV or NTSC camera into TV capture card; USB: Logitech QuickCam Pro 3000</td>
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Contact Information

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