I compare Mainconcept and x264 with the same configuration.

I use three well-known 4:2:0 sequences of 200 frames: Pesdestrian 1920x1080 25p, CrowRun 1280x720 50p and Stockholm 768x432 25p.

Here is the x264 command line for the HD sequence:

./x264 --input-res 1920x1080 --frames 200 --fps 25 --no-interlaced --bitrate 8000 --vbv-maxrate 8000 --vbv-bufsize 3000 --profile high --keyint 33 --min-keyint 33 --b-adapt 1 --bframes 2 --ref 4 --merange 192 --cabac --deblock 0:0 --chroma-qp-offset 1 --weightp 1 --qpmin 0 --qpmax 51 -o output.h264 input.yuv

I don’t set the thread number and x264 choose 24 threads automatically.

Here are the PSNR results (the SSIM curves are very similar):

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| --- |
| Pedestrian 1920x1080, bitrate 8000, vbv-maxrate 8000, vbv-bufsize 3000 |
|  |
| CrowRun 1280x720, bitrate 6000, vbv-maxrate 6000, vbv-bufsize 4000 |
|  |
| Stockholm 768x432, bitrate 2000, vbv-maxrate 2000, vbv-bufsize 2100 |
|  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Pedestrian 1920x1080 25p 8M | | | | CrowRun 1280x720 50p 6M | | | | Stockholm 768x432 25p 2M | | | |
|  | fps | Bitrate [Kb/s] | psnr(Y) | ssim(Y) | fps | Bitrate [Kb/s] | psnr(Y) | ssim(Y) | fps | Bitrate [Kb/s] | psnr(Y) | ssim(Y) |
| X264 | 26,75 | 5961,21 | 41,017 | 0,99366 | 59,38 | 5582,17 | 27,341 | 0,95716 | 164,77 | 1544,43 | 37,988 | 0,98655 |
| MC lib9.6 | 12,12 | 8156,92 | 42,551 | 0,99672 | 36,86 | 6497,68 | 29,169 | 0,96781 | 79,23 | 2123,63 | 40,316 | 0,99278 |

Observations : For the first GOP (30 frames for HD and 33 for 720 and SD), the quality of the x264 sequence is very bad because too few bit are allocated, and then x264 cannot succeed in achieving the target bitrate, consequently the average PSNR/SSIM is always lower than Mainconcept. But x264 is much faster than Mainconcept.