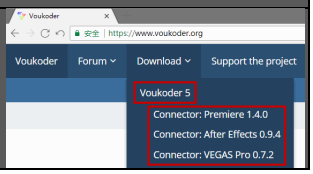
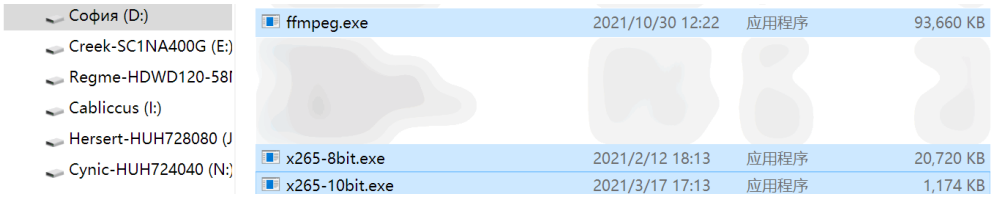
English version is derived from the x264 x265 Ultimate Tutorial Project by same author iAvoe

LigH	.hevc GCC10 [single .exe 8-10-12bit] w/ x86 w/ libx265.dll
Rigaya	.hevc GCC 9.3 [8-10-12bit] w/ x86
Patman	.hevc GCC 11+MSVC1925 [8-10-12bit]
ShortKatz	arm64~64e with x86 ? [?] macOS compiling needed
DJATOM-aMod	Intel, AMD zen1~2 [10bit], zen3 [10-12bit] GCC 10.2.1+GCC10.3
MeteorRain-yuuki	lsmash.mkv/mp4 或.hevc [lavf isn't as reliable as pipe acc. rumor] GCC 9.3+ICC 1900+MSVC 1916 [8][10][12bit]+[8-10-12bit]
ffmpeg all OS compatible. backup link: ottverse.com/ffmpeg-builds	
mpv player a small sized opensource video player with no color issues afaik	
x265GuiEx (Rigaya) 日本語, compiles by auto-setup, link for tutorial	
Voukoder; V-Connector free Premiere/Vegas/AE/Davinci Studio with libx264, libx265 presets from this tutorial loaded, currently the best exp. solution	

x265.exe command line usage for new users

[Download ffmpeg & x265 to a memorable path, in screenshot they are at D:\]



[Open Windows CMD.exe, click Start and punch in c, m, d will do]

[CMD auto-filling] Write some portion of PATH/filename, and hit [Tab] will trigger it

[ffmpeg build ver.] ffmpeg.exe; [x265 build ver.] x265.exe -V

[Export, Import] x265.exe [options] --output C:\folder\export.mp4 C:\folder\import.mp4

- Only possible with x265.exe with lavf decoder built-in, but you are copying completed command anyways, so no worries about this

[Unix pipe formats] Check ffmpeg, VS, avs2yuv pipe

[Use case] D:\ffmpeg.exe -i F:\video.mov -an -pix_fmt yuv420p10 -f yuv4mpegpipe -strict unofficial - | D:\x265-10bit.exe -D 10 --input-csp i444 --allow-non-conformance --rect --ctu 64 --min-cu-size 8 --limit-tu 1 --tu-intra-depth 4 --tu-inter-depth 4 --max-tu-size 16 --me star --subme 6 --merange 48 --analyze-src-pics --max-merge 4 --early-skip --b-intra --no-open-gop --radl 3 --min-keyint 5 --keyint 240 --ref 3 --fades --bframes 14 --b-adapt 2 --crf 16.5 --qcomp 0.6 --rdoq-level 2 --psy-rdoq 4 --aq-mode 4 --qg-size 16 --rd 5 --limit-modes --limit-refs 1 --rskip 1 --rd-refine --splitrd-skip --no-sao --tskip --master-display G(8500,39850)B(6550,2300)R(35400,14600)WP(15635,16450)L(10000000,1) --colorprim bt2020 --colormatrix bt2020nc --transfer smpte2084 --y4m - --output F:\done.hevc 2>D:\Desktop\ffmpeg_or_x265_error_logs.txt

ffmpeg, VS, avs2yuv pipe

```
ffmpeg -i video_in.mp4 -an -f yuv4mpegpipe -strict unofficial - | x265 --y4m - --output
```

```
ffmpeg -i video_in.mp4 -an -f rawvideo - | x265.exe --input-res <WxH> --fps <int/flo/frac> - --output
```

-format, -an bypass audio, -strict unofficial lift std. restrictions, --y4m for "YUV for MPEG", both "-" passes stream through the Unix pipe

```
VSpipe.exe       VSScript.vpy --y4m - | x265.exe - --y4m --output
```

```
VSpipe/avs2yuv   VSScript.vpy - | x265.exe --input-res <WxH> --fps <int/flo/frac> - --output
```

```
avs2yuv.exe      AVSScript.avs -raw   - | x265.exe --input-res <WxH> --fps <int/flo/frac> - --output
```

.ass subtitle rendering

Single font, math operators(∑ ∫ ∞): avs texttosub()

Multi font, math opts, art letters (ℋℜ), super/subscripts(9^{9}_{9}): ffmpeg -filter_complex "ass='F\:/mySub.ass'"

Stop encoding & mux encoded frames: Ctrl+C (x265.exe built-in feature?)

ffmpeg multiplexing *(change extension for different formats)*

- ffmpeg.exe -i ".\video_stream.mp4" -an -c:v copy -i ".\audio_stream.aac" -c copy "mux_out.mov"

ffmpeg replace existing audio *(itoffset ±seconds to align new audio stream)*

- ffmpeg.exe -i ".\mux_in.mov" -itsoffset 0 -i ".\new_ad_st_in.aac" -c:v copy -map 0:v:0 -map 1:a:0 -c:a copy ".\new_mux_out.mov"

ffmpeg conv. framerate mode: -vsync cfr (1) / vfr (2) / drop

ffmpeg built-in scaling: -sws_flags bicubic bitexact gauss neighbor bicublin lanczos spline +full_chroma_int +full_chroma_inp +accurate_rnd (e.g.: -sws_flags bitexact+full_chroma_int+full_chroma_inp+accurate_rnd)

HDR Tags --master-display <manually tagging for instruct video players or decoders to correctly play HDR sources

DCI-P3: G(13250,34500)B(7500,3000)R(34000,16000)WP(15635,16450)L(?,1)

bt709: G(15000,30000)B(7500,3000)R(32000,16500)WP(15635,16450)L(?,1)

bt2020: G(8500,39850)B(6550,2300)R(35400,14600)WP(15635,16450)L(?,1)

- Check HDR source's metadata for color space，then copy the corresponding settings above as param value
- max for L has no standards，which means every video could be different, check your source stream

DCI-P3: G(x0.265, y0.690), B(x0.150, y0.060), R(x0.680, y0.320), WP(x0.3127, y0.329)

bt709: G(x0.30, y0.60), B(x0.150, y0.060), R(x0.640, y0.330), WP(x0.3127,y0.329)

bt2020: G(x0.170, y0.797), B(x0.131, y0.046), R(x0.708, y0.292), WP(x0.3127,y0.329)>

-- cll <same value as master-display max L>

Color Primaries --colormatrix <as src, e.g.: gbr bt709 fcc bt470bg smpte170m YCgCo bt2020nc bt2020c smpte2085 ictcp>

--transfer <as source, e.g.: gbr bt709 fcc bt470bg smpte170m YCgCo bt2020nc bt2020c smpte2085 ictcp>

General Purpose·Simple

---generalized configurable options for simplicity

splt-trans --min-cu-size 16 --limit-tu 1 --tu-intra-depth 2 --tu-inter-depth 2

srch-cmpn --me umh --subme 5 --merange 48 --rskip 1 --weightb

ref-rateol --ref 3 --early-skip --max-merge 2 --no-open-gop --min-keyint 5 --fades --bframes 11 --b-adapt 2 --radl 2 --fast-intra

paramset --opt-qp-pps --opt-ref-list-length-pps

quantize --crf 18 --crqpoffs -2

adpt quant --aq-mode 3 --aq-motion --qg-size 16

rdo-mdecs --rd 3 --splitrd-skip --rdoq-level 1 --limit-modes --rect --tskip-fast

sao --limit-sao --sao-non-deblock

io --hash crc --allow-non-conformance

tgt. depth -D 8/10/12 (default 8bit or lowest built in x265.exe, same or convert to lower depth only w/ --dither)

multi node --pools ,,,, (e.g.: "-,+"states a PC w/ 2 CPU nodes & use the 2nd only, using both nodes causes mem. delay)

crop --display-window <integer "←, ↑ ,→, ↓ " pixels>

(ffmpeg pipe) x265 CLI parameters

- ffmpeg.exe -loglevel 16 -hwaccel auto -y -hide_banner -i ".\v_in.mp4" -an -f yuv4mpegpipe -strict unofficial - | x265.exe --min-cu-size 16 --limit-tu 1 --tu-intra-depth 2 --tu-inter-depth 2 --me

umh --subme 5 --merange 48 --rskip 1 --weightb --ref 3 --early-skip --max-merge 2 --no-open-gop --min-keyint 5 --fades --bframes 11 --b-adapt 2 --radl 2 --fast-intra --opt-qp-pps --opt-ref-list-length-pps --crf 18 --crqpoffs -2 --aq-mode 3 --aq-motion --qg-size 16 --rd 3 --splitrd-skip --rdoq-level 1 --limit-modes --rect --tskip-fast --limit-sao --sao-non-deblock --hash crc --allow-non-conformance --y4m - --output ".\v_out.mp4"

libx265 CLI, compatible w/ libav fork

- ffmpeg.exe -loglevel 16 -hwaccel auto -y -hide_banner -i ".\v_in.mp4" -c:v libx265 -x265params "min-cu-size=16:limit-tu=1:tu-intra-depth=2:tu-inter-depth=2:me=umh:subme=5:merange=48:rskip=1:weightb=1:ref=3:early-skip=1:max-merge=2:open-gop=0:min-keyint=5:fades=1:bframes=11:b-adapt=2:radl=2:fast-intra=1:opt-qp-pps=1:opt-ref-list-length-pps=1:crf=18:crqpoffs=-2:aq-mode=3:aq-motion=1:qg-size=16:rd=3:splitrd-skip=1:rdoq-level=1:limit-modes=1:rect=1:tskip-fast=1:limit-sao=1:sao-non-deblock=1:hash=crc:allow-non-conformance=1" -c:a copy ".\v_out.mp4"
- **Depth, colorspace:** -pix_fmts yuv420p / yuv422p / yuv444p / yuv420p10 / yuv422p10 / yuv444p10...

libkvazaar CLI (in dev, crf mode missing) (libx265 ffmpeg CLI is lacking 85% of params, skipped)

- ffmpeg.exe -loglevel 16 -hwaccel auto -y -hide_banner -i ".\v_in.mp4" -c:v libkvazaar -kvazaar-params "limit-tu=1:tr-depth-intra=2:pu-depth-intra=4:pu-depth-inter=3:smp=1:amp=1:bipred=1:me=tz:subme=4:merange=48:me-early-termination=off:max-merge=2:ref=3:open-gop=0:period=360:gop=16:transform-skip=1:qp=16:fast-residual-cost=1:early-skip=1:max-merge=4:rd=3:mv-rdo=1:rdoq-skip=1:intra-rdo-et=1:sao=edge:hash=checksum" -c:a copy ".\v_out.mp4"

General Purpose·Std.

---Contains many custom options for some trade offs

splt-trans --ctu <less than 1600×900=32; others=64> --min-cu-size 16 --tu-intra-depth 3 --tu-inter-depth 3 --limit-tu 1

srch-cmpns --me <SLOW: umh/SLOWER: star> --subme 5 --merange 48 --analyze-src-pics --weightb

***alter search** --hme-search umh --hme-range <(ctu-4-subme)÷4, (ctu-4-subme)÷2, ctu-4-subme>

ref-rateol --ref 3 --max-merge 2 --early-skip --no-open-gop --min-keyint 5 --keyint <9×fps> --fades --bframes 13 --b-adapt 2 --radl 3 <SHARP LINES EDGES: --pbratio 1.2>

paramset --opt-qp-pps --opt-ref-list-length-pps

intracoding <FAST: --fast-intra / MED: leave-empty / SLOW: --b-intra / SLOWER: + --constrained-intra>

quantization --crf <QUALITY: 16-18 / COMPRESSION :19-20> --crqpoffs -3 --cbqpoffs -1 --hrd

rdoq --rdoq-level <FAST: 1, SLOW: 2>

adapt quant --aq-mode 4 --aq-strength <FILM: 0.8, ANIMATION: 1> --qg-size 16

md decision --rd 5 --limit-modes --limit-refs 1 --rskip 1 --rc-lookahead <3×fps> --tskip-fast --rect <SLOWER: --amp>

rdo --psy-rd <FILM=1.6, ANIME=0.6, +0.6 if ctu=64, -0.6 if ctu=16> --splitrd-skip

deblock --deblock <DEFAULT=1:0, GENERAL=0:0, ANIMATION=0:-1>

sao <COMPRESSION: -limit-sao --sao-non-deblock / QUALITY: --no-sao>

io --hash crc --allow-non-conformance <NAS STREAMING: --idr-recovery-sei>

multi node --pools ,,,, (e.g.: "-,+"states a PC w/ 2 CPU nodes & use the 2nd only, using both nodes causes mem. delay)

tgt. depth -D 8/10/12 (default 8bit or lowest built in x265.exe, same or convert to lower depth only w/ --dither)

(ffmpeg pipe) x265 CLI parameters

- ffmpeg.exe -loglevel 16 -hwaccel auto -y -hide_banner -i ".\v_in.mp4" -an -f yuv4mpegpipe -strict unofficial - | x265.exe --ctu ◯ -min-cu-size 16 --tu-intra-depth 3 --tu-inter-depth 3 --limit-tu 1 --me ◯ --subme 5 --merange 48 --analyze-src-pics --weightb --ref 3 --max-merge 2 --early-skip --no-open-gop --min-keyint 5 --fades --bframes 13 --b-adapt 2 --radl 3 --pbratio 1.2 --fast-intra --b-intra --constrained-intra --opt-qp-pps --opt-ref-list-length-pps --crf ◯ --crqpoffs -3 --crqpoffs -1 --hrd --rdoq-level ◯ --aq-mode 4 --aq-strength ◯ --qg-size 16 --rd 5 --limit-modes --limit-refs 1 --tskip-fast --rect --amp --psy-rd ◯ --splitrd-skip --no-sao --limit-sao --sao-non-deblock --hash crc --allow-non-conformance --y4m - --output ".\v_out.mp4"

libx265 CLI, compatible w/ libav fork

- ffmpeg.exe -loglevel 16 -hwaccel auto -y -hide_banner -i ".\v_in.mp4" -c:v libx265 -x265params "ctu=◯:min-cu-size=16:tu-intra-depth=3:tu-inter-depth=3:limit-tu=1:me=◯:subme=5:merange=48:analyze-src-pics=1:weightb=1:ref=3:max-merge=2:early-skip=1:open-gop=0:min-keyint=5:fades=1:bframes=13:b-adapt=2:radl=3:pbratio=1.2:fast-intra=1:opt-qp-pps=1:opt-ref-list-length-pps=1:crf=◯:crqpoffs=-3:cbqpoffs=-1:hrd=1:rdoq-level=◯:aq-mode=4:aq-strength=?:qg-size=16:rd=5:limit-modes=1:limit-refs=1:tskip-fast=1:rect=1:amp=1:psy-rd=◯:splitrd-skip=1:no-sao=1:limit-sao=1:sao-non-deblock=1:hash=crc:allow-non-conformance=1" -c:a copy ".\v_out.mp4"
- **Depth, colorspace:** -pix_fmts yuv420p / yuv422p / yuv444p / yuv420p10 / yuv422p10 / yuv444p10...

High Compression·Film

splt-trans --ctu 64 --min-cu-size 16 --tu-intra-depth 4 --tu-inter-depth 4 --limit-tu 1

srch-cmpns --me star --subme 5 --merange 48 --analyze-src-pics --weightb

ref-rateol --ref 3 --max-merge 4 --early-skip --no-open-gop --min-keyint 1 --keyint <13×fps>

--fades --bframes 14 --b-adapt 2 --radl 3

paramtr-set --opt-qp-pps --opt-ref-list-length-pps

intra coding --constrained-intra --b-intra

quantization --crf 22 --qpmin 10 --crqpoffs -2 --hrd --vbv-bufsize <max kbps> --vbv-maxrate

<0.5~10× bufsize kbps for desired handling (large small over & lack space states)>

rdoq --rdoq-level 2

adapt.quant --aq-mode 2 --aq-strength <very clean lines, flats & edges=0.8, others=1> --qg-size 8

md decision --rd 5 --limit-modes --limit-refs 0 --rskip 0 --rc-lookahead <3×fps> --rect --amp

rdo --psy-rd <film=1.6, animation=0.6, +0.6 if ctu=64, -0.6 if ctu=16> --rd-refine

deblock --deblock 0:0

sao --limit-sao --sao-non-deblock --selective-sao 3

io --hash crc --allow-non-conformance --nr-inter 8 <NAS streaming: --idr-recovery-sei>

multi node --pools ,,,, (e.g.: "-,+"states a PC w/ 2 CPU nodes & use the 2nd only, using extra nodes causes mem. delay)

crop --display-window <integer "←, ↑ ,→, ↓ " pixels>

tgt. depth -D 8/10/12 (default 8bit or lowest built in x265.exe, same or convert to lower depth only w/ --dither)

(ffmpeg pipe) x265 CLI parameters

- ffmpeg.exe -loglevel 16 -hwaccel auto -y -hide_banner -i ".\v_in.mp4" -an -f yuv4mpegpipe -strict unofficial - | x265.exe --ctu 64 -min-cu-size 16 --tu-intra-depth 4 --tu-inter-depth 4 --limit-tu 1 --me star --subme 5 --merange 48 --analyze-src-pics --weightb --ref 3 --max-merge 4 --early-skip --no-open-gop --min-keyint 1 --keyint ◯ --fades --bframes 14 --b-adapt 2 --radl 3 --constrained-intra --b-intra --opt-qp-pps --opt-ref-list-length-pps --crf 22 --qimin 10 --crqpoffs -2 --hrd --vbv-bufsize ◯ --vbv-maxrate ◯ --rdoq-level 2 --aq-mode 2 --aq-strength ◯ --qg-size 8 --rd 5 --limit-modes --limit-refs 0 --rskip 0 --rc-lookahead ◯ --rect --amp --psy-rd ◯ --rd-refine --deblock 0:0 --limit-sao --sao-non-deblock --selective-sao 3 --hash crc --allow-non-conformance --nr-inter 10 --nr-intra 8 --y4m - --output ".\v_out.mp4"

libx265 CLI, compatible w/ libav fork

- ffmpeg.exe -loglevel 16 -hwaccel auto -y -hide_banner -i ".\v_in.mp4" -c:v libx265 -x265params "ctu=64:min-cu-size=16:tu-intra-depth=4:tu-inter-depth=4:limit-tu=1:me=star:subme=5:merange=48:analyze-src-pics=1:weightb=1:ref=3:max-merge=4:early-skip=1:open-gop=0:min-keyint=1:keyint= ◯ :fades=1:bframes=14:b-adapt=2:radl=3:constrained-intra=1:b-itnra=1:opt-qp-pps=1:opt-ref-list-length-pps=1:crf=22:qpmin=10:crqpoffs=-2:hrd=1:vbv-bufsize= ◯ :vbv-maxrate= ◯ :rdoq-level=2:aq-mode=2:aq-strength= ◯ :qg-size=8:rd=5:limit-modes=1:limit-refs=0:rskip=0:rc-lookahead= ◯ :rect=1:amp=1:psy-rd= ◯ :rd-refine=1:deblock=0:0:limit-sao=1:sao-non-deblock=1:selective-sao=3:hash=crc:allow-non-conformance=1:nr-inter=10:nr-intra=8" -c:a copy ".\v_out.mp4"
- **Depth, colorspace:** -pix_fmts yuv420p / yuv422p / yuv444p / yuv420p10 / yuv422p10 / yuv444p10...

Editing footage·Render & Reuse

block/unit spitting	--ctu 32
motion search	--me star --subme 6 --merange 48 --analyze-src-pics
intraframe search	--max-merge 4 --early-skip --b-intra
rate control	--no-open-gop --min-keyint 1 --keyint <7×fps>--ref 3 --fades --bframes 7 --b-adapt 2
quantization	--crf 17 --crqpoffs -3 --cbqpoffs -2
mode decision	--rd 5 --limit-modes --limit-refs 1 --rskip 1 --rc-lookahead <4×fps>
rate distortion optimization	--splitrd-skip --rd-refine
deblock	--deblock 0:-1
pic/interfrm/rate param set	--opt-qp-pps --opt-ref-list-length-pps
input output	--hash crc --allow-non-conformance
tuning	--tune grain
target pixel bit depth	-D 8/10/12 (default 8bit or lowest built in x265.exe, same or convert to lower depth only w/ --dither)

(ffmpeg pipe) x265 CLI parameters

- ffmpeg.exe -loglevel 16 -hwaccel auto -y -hide_banner -i ".\v_in.mp4" -an -f yuv4mpegpipe -strict unofficial - | x265.exe --ctu ◯ --me star --subme 6 --merange 48 --analyze-src-pics --max-merge 4 --early-skip --b-intra --no-open-gop --min-keyint 1 --keyint ◯ --ref 3 --fades --bframes 7 --b-adapt 2 --crf 17 --crqpoffs -3 --cbqpoffs -2 --rd 5 --limit-modes --limit-refs 1 --rskip 1 --rc-lookahead ◯ --splitrd-skip --rd-refine --deblock 0:-1 --hash crc --allow-non-conformance --tune grain --y4m - --output ".\v_out.mp4"

libx265 CLI, compatible w/ libav fork

- ffmpeg.exe -loglevel 16 -hwaccel auto -y -hide_banner -i ".\v_in.mp4" -c:v libx265 -x265params "ctu=◯:me=star:subme=6:merange=48:analyze-src-pics=1:max-merge=4:early-skip=1:open-gop=0:min-keyint=1:keyint=◯:ref=3:fades=1:bframes=7:b-adapt=2:radl=3:constrained-intra=1:b-itnra=1:opt-qp-pps=1:opt-ref-list-length-pps=1:crf=17:crqpoffs =-3:cbqpoffs=-2:rd=5:limit-modes=1:limit-refs=1:rskip=1:rc-lookahead=◯:splitrd-skip=1:rd-refine=1:deblock=0:-1:hash=crc:allow-non-conformance=1:tune=grain" -c:a copy ".\v_out.mp4"
- **Depth, colorspace:** -pix_fmts yuv420p / yuv422p / yuv444p / yuv420p10 / yuv422p10 / yuv444p10...

Anime·High Compression·Subtitle Groups

splt-trans --ctu 64 --min-cu-size 8 --tu-intra-depth 4 --tu-inter-depth 4 --limit-tu 1

srch-cmpns --me umh --merange 48 --subme 3 --analyze-src-pics --weightb --max-merge 4 --early-skip

ref-rateol --ref 3 --no-open-gop --min-keyint 5 --keyint <12×fps> --fades --bframes 13 --b-adapt 2 --radl 2

param set --opt-qp-pps --opt-ref-list-length-pps

intra coding --b-intra --constrained-intra

quantization --crf 20 --crqpoffs -3 --cbqpoffs -1

lossless qnt --cu-lossless

rdoq --psy-rdoq 2.3 --rdoq-level 2

aq --aq-mode 3 --aq-strength 0.7 --qg-size 8

md --rd 5 --limit-modes --limit-refs 1 --rskip 1 --rc-lookahead <2.5 × fps> --rect --amp

rdo --psy-rd 1.5 --rd-refine --splitrd-skip --rdpenalty 3

deblock --deblock 0:-1

sao --limit-sao --sao-non-deblock

io --hash crc --allow-non-conformance --single-sei <NAS streaming: --idr-recovery-sei>

multi nodes --pools ,,,, (e.g.: "-,+"states a PC w/ 2 CPU nodes & use the 2nd only, using extra nodes causes mem. delay)

tgt. depth -D 8/10/12 (default 8bit or lowest built in x265.exe, same or convert to lower depth only w/ --dither)

crop --display-window <integer "←, ↑ ,→, ↓ " pixels>

(ffmpeg pipe) x265 CLI parameters

- ffmpeg.exe -loglevel 16 -hwaccel auto -y -hide_banner -i ".\v_in.mp4" -an -f yuv4mpegpipe -strict unofficial - | x265.exe --ctu 64 -min-cu-size 8 --tu-intra-depth 4 --tu-inter-depth 4 --limit-tu 1 --me umh --subme 3 --merange 48 --analyze-src-pics --weightb --max-merge 4 --early-skip --ref 3 --no-open-gop --min-keyint 5 --keyint ◯ --fades --bframes 13 --b-adapt 2 --radl 2 --opt-qp-pps --opt-ref-list-length-pps --constrained-intra --b-intra --crf 20 --crqpoffs -3 --cbqpoffs -1 --cu-lossless --psy-rdoq 2.3 --rdoq-level 2 --aq-mode 2 --aq-strength 0.7 --qg-size 8 --rd 5 --limit-modes --limit-refs 1 --rskip 1 --rc-lookahead ◯ --rect --amp --psy-rd 1.5 --rd-refine --splitrd-skip --rdpenalty 3 --deblock 0:-1 --limit-sao --sao-non-deblock --hash crc --allow-non-conformance --single-sei --y4m - --output ".\v_out.mp4"

libx265 CLI, compatible w/ libav fork

- ffmpeg.exe -loglevel 16 -hwaccel auto -y -hide_banner -i ".\v_in.mp4" -c:v libx265 -x265params "ctu=64:min-cu-size=8:tu-intra-depth=4:tu-inter-depth=4:limit-tu=1:me=umh:subme=3:merange=48:analyze-src-pics=1:weightb=1:max-merge=4:early-skip=1:ref=3:open-gop=0:min-keyint=5:keyint=◯:fades=1:bframes=13:b-adapt=2:radl=2:opt-qp-pps=1:opt-ref-list-length-pps=1:constrained-intra=1:b-intra=1:crf=20:crqpoffs=-3:cbqpoffs=-1:cu-lossless=1:psy-rdoq=2.3:rdoq-level=2:aq-mode=2:aq-strength=0.7:qg-size=8:rd=5:limit-modes=1:limit-refs=1:rskip=1:rc-lookahead=◯:rect=1:amp=1:psy-rd=1.5:rd-refine=1:splitrd-skip=1:rdpenalty=3:deblock=0:-1:limit-sao=1:sao-non-deblock=1:hash=crc:allow-non-conformance=1:single-sei=1" -c:a copy ".\v_out.mp4"
- **Depth, colorspace:** -pix_fmts yuv420p / yuv422p / yuv444p / yuv420p10 / yuv422p10 / yuv444p10...

Anime·Ripper's Coldwar·HEDT Only

Paused dark flat scenes must look AS-IS, results less & slower compression than sub grps

splt-trans --ctu 64 --min-cu-size 8 --tu-intra-depth 4 --tu-inter-depth 4 --max-tu-size 4

srch-cmpns --me star --merange 48 --analyze-src-pics --subme 3 --weightb --max-merge 4 --early-skip

ref-rateol --ref 3 --no-open-gop --min-keyint 5 --keyint <12×fps> --fades --bframes 16 --b-adapt 2 --radl 2 --pbratio 1.2

param set --opt-qp-pps --opt-ref-list-length-pps

intra coding --b-intra

quantization --crf 15 --crqpoffs -5 --cbqpoffs -3

lossless qnt --cu-lossless

rdoq --psy-rdoq 2.5 --rdoq-level 2

aq --aq-mode 4 --aq-strength 1.5 --qg-size 8

md --rd 5 --limit-refs 0 --rskip 0 --rc-lookahead <2.5 × fps> --rect --amp --no-cutree

rdo --psy-rd 1.5 --rd-refine --rdpenalty 3

deblock --deblock -1:-2

sao --no-sao

io --hash crc --allow-non-conformance --single-sei <NAS streaming: --idr-recovery-sei>

multi nodes --pools ,,,, (e.g.: "-,+"states a PC w/ 2 CPU nodes & use the 2nd only, using extra nodes causes mem. delay)

tgt. depth -D 8/10/12 (default 8bit or lowest built in x265.exe, same or convert to lower depth only w/ --dither)

(ffmpeg pipe) x265 CLI parameters

- ffmpeg.exe -loglevel 16 -hwaccel auto -y -hide_banner -i ".\v_in.mp4" -an -f yuv4mpegpipe -strict unofficial - | x265.exe --ctu 64 -min-cu-size 8 --tu-intra-depth 4 --tu-inter-depth 4 --max-tu-size 4 --limit-tu 1 --max-tu-size 4 --me star --subme 3 --merange 52 --analyze-src-pics --weightb --max-merge 4 --early-skip --ref 3 --no-open-gop --min-keyint 5 --keyint ◯ --fades --bframes 16 --b-adapt 2 --radl 2 --opt-qp-pps --opt-ref-list-length-pps --b-intra --crf 15 --crqpoffs -5 --cbqpoffs -3 --cu-lossless --psy-rdoq 2.5 --rdoq-level 2 --aq-mode 4 --aq-strength 1.5 --qg-size 8 --rd 5 --limit-refs 0 --rskip 0 --rc-lookahead ◯ --rect --amp --no-cutree --psy-rd 1.5 --rd-refine --rdpenalty 3 --deblock -1:-2 --no-sao --hash crc --allow-non-conformance --single-sei --y4m - --output ".\v_out.mp4"

libx265 CLI, compatible w/ libav fork

- ffmpeg.exe -loglevel 16 -hwaccel auto -y -hide_banner -i ".\v_in.mp4" -c:v libx265 -x265params "ctu=64:min-cu-size=8:tu-intra-depth=4:tu-inter-depth=4:max-tu-size=4:limit-tu=1:max-tu-size=4:me=star:subme=3:merange=52:analyze-src-pics=1:weightb=1:max-merge=4:early-skip=1:ref=3:open-gop=0:min-keyint=5:keyint=◯:fades=1:bframes=16:b-adapt=2:radl=2:opt-qp-pps=1:opt-ref-list-length-pps=1:b-intra=1:crf=15:crqpoffs=-5:cbqpoffs=-3:cu-lossless=1:psy-rdoq=2.5:rdoq-level=2:aq-mode=4:aq-strength=1.5:qg-size=8:rd=5:limit-modes=1:limit-refs=1:rskip=0:rc-lookahead=◯:rect=1:amp=1:cutree=0:psy-rd=1.5:rd-refine=1:rdpenalty=3:deblock=-1:-2:limit-sao=1:sao-non-deblock=1:hash=crc:allow-non-conformance=1:single-sei=1" -c:a copy ".\v_out.mp4"
- **Depth, colorspace:** -pix_fmts yuv420p / yuv422p / yuv444p / yuv420p10 / yuv422p10 / yuv444p10...