

MENCODER-TFT By Panu P.

Quick instructions:

Example 1:

A moderately sized file with color quantization ok for a 320:240 TFT LCD:
(write the following into a single line)

```
mencoder inputfile.avi -vf scale=320:240 -endpos 00:01:00 -oac mp3lame  
-lameopts cbr:br=96 -ovc lavc -lavcopts  
vcodec=lcd1:vbitrate=400:vqmin=12:vqmax=28:debug=12 -o steh5.avi
```

Parameters explained:

mencoder	the program name (mencoder.exe)
inputfile.avi	the input AVI file name
-vf scale=320:240	the LCD's resolution
-endpos 00:01:00	stop after 1 minute of file
-oac mp3lame	make MP3 audio (not OK for VS1000)
-lameopts cbr:br=96	make 96 kbit/s MP3 speed
-ovc lavc	encode video with libAvCodec
-lavcopts	set libAVcodec options
vcodec=lcd1	use Panu's LCD1 video encoder
:vbitrate=400	frameskip after 400 blocks (higher=better)
:vqmin=12	immediate quality (3..20) (lower=better)
:vqmax=28	trailing quality (1..31) (lower=better)
:debug=12	color resolution (1..64) (lower=better)
-o output.avi	output file output.avi

Parameters even more explained:

vbitrate

A small number here will make the file skip blocks a lot. For example: a TFT LCD with resolution 320:240 has 1200 macroblocks, each with 8x8 resolution. So the maximum number of block updates per frame is 1200. If the encoder puts more blocks to the frame than **vbitrate** number, the encoder will skip so many frames, that the local average of vbitrate remains under the value:

Example: vbitrate=20 will cause up to $1200/20 = 60$ frames (2.4 seconds of video) to be skipped after a complete picture update.

vqmin

A small number here will cause the encoder to update any blocks with even a little change when compared to the previous input frame. A large number will allow large changes in the block before it triggers the update.

vqmax

Same as vqmin, but for accumulated difference over time, making blocks that have been left unupdated for a long time update more.

debug

a large number here will allow the colors to be coded less accurately, making the file smaller.

Experiments with 1 minute of video (60 seconds of a TV show).

Read these to get a feeling of what the options do, so you can experiment better yourself.

Experiment 1 : "No video"

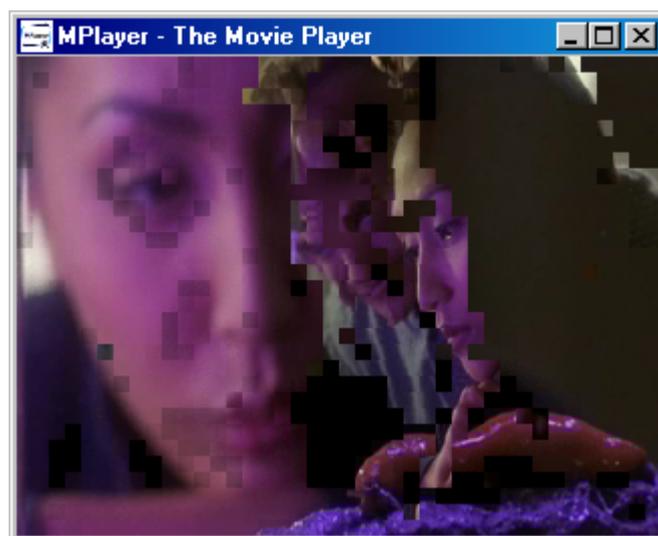
```
-lavcopts vcodec=lcd1:vqmin=31:vqmax=31
```



Result: No video blocks at all, file size 1.5 M (audio only)

Experiment 2 : "Sparse Blocks"

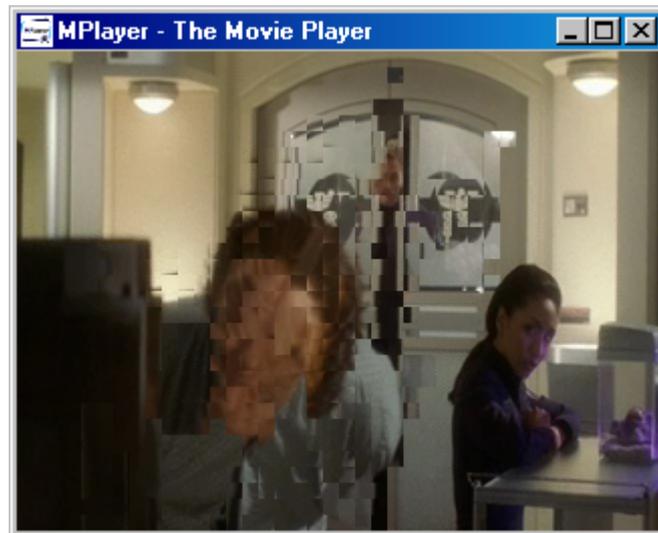
```
-lavcopts vcodec=lcd1:vqmin=31:vqmax=29
```



Result: Video bitrate 0.089 Mb/s, file size 2.1 megabytes.
Blocks updated only here and there...

Experiment 3 "Blocky Movement"

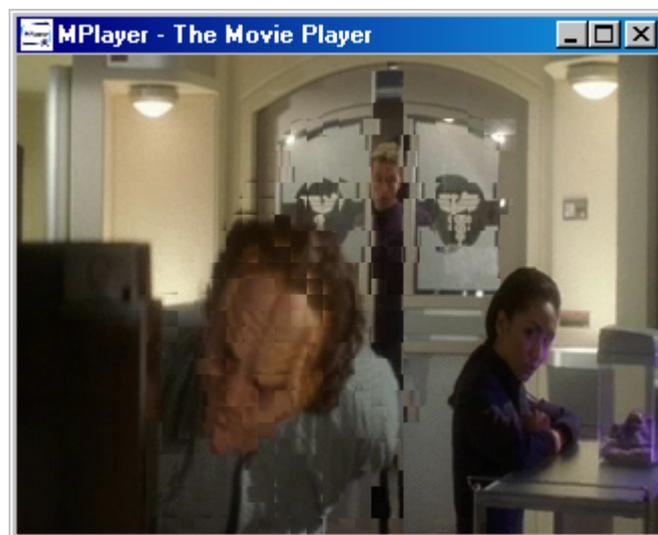
```
-lavcopts vcodec=lcd1:vqmin=31:vqmax=25
```



Result: Video bitrate 0.322 Mb/s, file size 3.8 megabytes.
Lots more video than in experiment 2, but motion is very blocky.

Experiment 4 "Faster Blocky Movement"

```
-lavcopts vcodec=lcd1:vqmin=31:vqmax=20
```

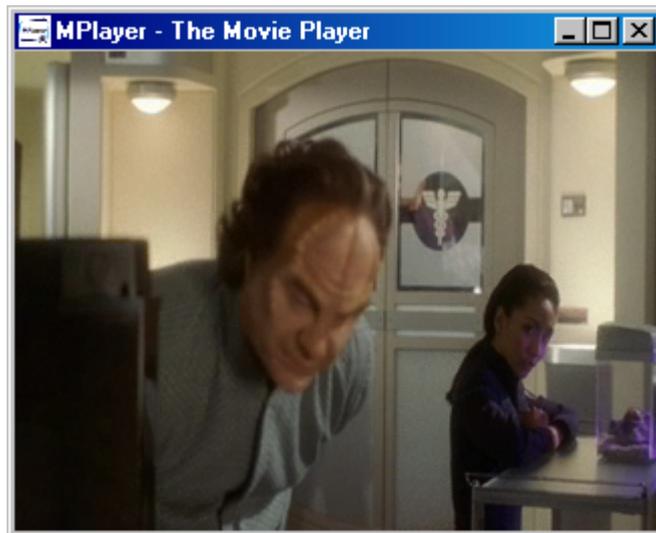


Result: Video bitrate 0.685 Mb/s, file size 6.4 megabytes.
A lot faster video, but movement is still very blocky. (suggestion: use vbitrate instead...)

Note: As can be seen, the "Blocky Movement" examples don't produce good video by themselves, but it is useful to understand the function of the "vqmax" option so that it can be used effectively for fine-tuning together with the other options. Hint: you can try to use vqmax to minimize trails.

Experiment 5 "Skippy movement"

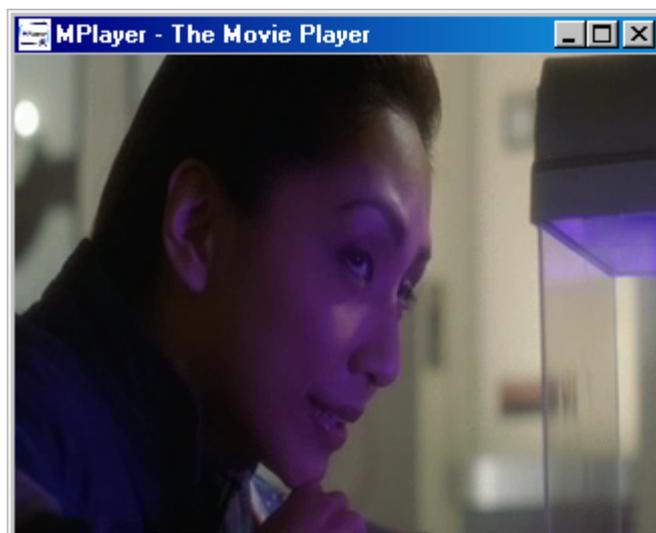
```
-lavcopts vcodec=lcd1:vbitrate=120
```



Result: Video bitrate 0.659 Mbits/s, file size 6.2 megabytes.
The picture quality is very good, but up to 9 frames are skipped when there is a lot of movement.
The minimum frame rate is 2 pictures per second.

Experiment 6 "Slideshow"

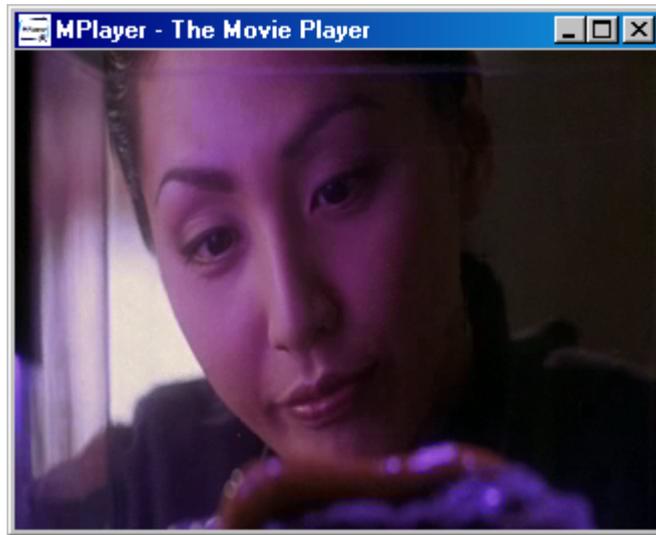
```
vcodec=lcd1:vbitrate=10
```



Result: Video bitrate 0.068 Mbits/s, file size 2.0 Megabytes (mostly audio; audio uses 1.5 M)
Still pictures, the picture changes about once per 2 seconds.

Experiment 7 "Good Quality" (default settings)

vcodec=lcd1



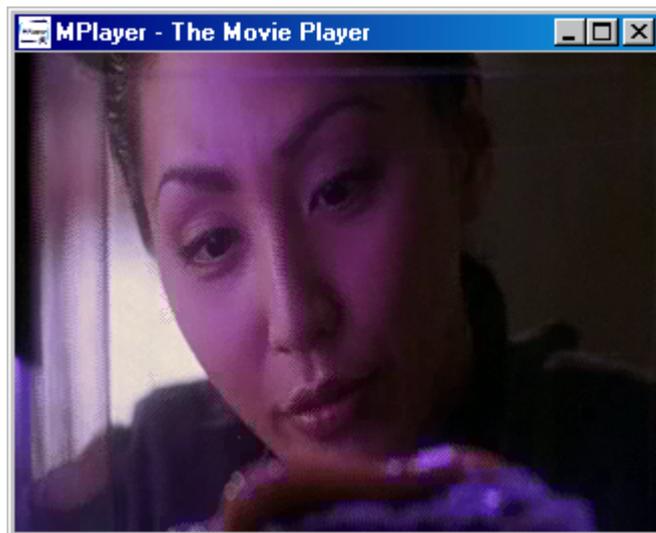
Result: Video bitrate 1.501 Mbits/s, File size 13 megabytes.

This file is good watching, even on a PC screen. Good VHS quality. Sometimes 1 frame is skipped when there is lots of movement.

(Note: the defaults are: vcodec=lcd1:vbitrate=800:vqmin=12:vqmax=31:debug=4)

Experiment 8 "Coarse Quantization"

vcodec=lcd1:debug=20



Result: Video bitrate 0.962 Mbits/s, File size 8.3 megabytes.

Everything else is the same as in the default ("Good Quality") settings, but less colors are used to encode the blocks. Dithering is used, so the picture is still mostly quite enjoyable.