

CCE-MP Frequently Asked Questions – 060908a

1. What is CCE-MP?

CCE-MP stands for CINEMA CRAFT ENCODER MAC PLUG-IN. It is the plug-in for the Compressor 3 application. It uses the same High quality encoding engine from CCX (CINEMA CRAFT Xstream) and allows Final Cut Studio 2 users to encode their content to world class high-quality MPEG-2 files for DVD authoring without changing their current Compressor workflow.

It is important to also clarify what CCE-MP is not:

Xstream is an “online” turnkey system with hardware allowing you to capture using CINEMA CRAFTs’ proprietary frame capture board and playback/preview with a hardware decoder card. CCE-MP is strictly a software engine. The CCE-MP interface (GUI) is different from Xstream and was recreated for Compressor 3. Advanced features such as the CINEMA CRAFTs’ Bit Allocation, Filters, Picture, Effect, Inverse 3:2 Pulldown windows and segment Re-Encoding are only available in Xstream. If you care to learn more about the Xstream product, go to our website:

2. Are all the powerful features in the encoding engine of CCX also in CCE-MP

Yes, multiple pass encoding – up to 99 passes. It also includes VMPE, AAGS and AAQM. Please see this link for full explanation of these features.
http://www.kenstone.net/fcp_homepage/fcp_homepage_index.html

3. Will CINEMA CRAFT MP run on old G5 configurations – before the Intel Mac such as the Power PC G5?

No. CCE-MP requires an **Intel** Based Mac. This includes the Intel Mac Pro, iMac, the new Air Mac, Air Book and Air Book Pro.

Please note, that our plug-in has different system requirements than that of Final Cut Studio 2, <http://www.apple.com/finalcutstudio/specs/>

MINIMUM CONFIGURATION for CCE-MP

- An **Intel** Based Mac
- 2GB of Ram
- Mac OS 10.5
- Compressor 3

We require 2MB of disk space to install CCE-MP

Recommended Configurations

The following are recommended for all applications:

4GB of RAM when working with compressed HD and uncompressed SD sources

8GB of RAM when working with uncompressed HD sources

4. Will CINEMA CRAFT MP run on older version of Final Cut Studio or older versions of Compressor?

No. CCE-MP will only run on Compressor 3 - Final Cut Studio 2.

5. Does CCE-MP utilize multiple system processors and cores?

Yes, the CCE-MP engine searches for the number of processors installed and utilizes them during the encoding process. The faster your processors and the more you have the better encoding times. For example, if you have a quad Mac Pro, CCE-MP will see and use 8 processors.

6. Does CCE-MP also take advantage of RAID storage?

The CCE-MP engine requires processing power more than Disk I/O. Testing has shown no significant improvement in encoding times using a RAID or just the internal drive.

During encoding times it's been noted that read times of the source file is much higher than write times of the encoded file. Tests have shown read times averaging 40MB/sec and write times at 2MB/sec.

7. How does the quality of CCE-MP compare to that of CCE-SP2 for the PC?

CCE-MP uses the Xstream Engine which is a completely different engine than that of SP2. With CCE-MP you're getting a better quality picture due to the enhanced built-in features of the Engine such as VMPE, AAGS and AAQM

8. What kind of encoding speeds do you get with CCE-MP?

First, it should be noted that tested encoding times are based on a Mac Pro Quad (8 core Xeon 5400) 2.8GHz, 2GB Ram, 300GB Internal HD. Older Mac Pro's like the first generation 2.0GHz Dual Core Xeon 5100 will have slower encoding times because of the difference in processing power.

Second, you will notice differing encoding times based upon the source content's codec, frame size and frame rate.

Testing has confirmed that a setting of VBR 3 or more, encoding times on the 3rd and subsequent pass are faster.

On average you should get 2-6 times faster than real-time on your total encoding time.

Here are some example encodes on a Mac Pro Quad Core 2.8 GHz, 2GB RAM, 300GB HD

1. On an Quick Time Uncompressed bit 4:2:2 codec, frame =720x486, frame rate =23.976, anamorphic
1 min clip VBR 2 = 1:20 min encoding time = 2.25 times faster than real-time. 48 frames/sec ** Remember VBR 2 in reality is 3 passes
2. On a DVCAM NTSC codec, frame = 720x480, frame rate = 29.97
6 min clip VBR 2 = 3:41 min encoding time = 4.89 times faster than real-time. 154 frames/sec ** Remember VBR 2 in reality is 3 passes

6 min clip VBR 4 = 6:03 min encoding time = 4.95 times faster than real-time. 155 frames/sec ** Remember VBR 4 in reality is 5 passes
3. On a DVCPRO HD Codec Feature film Scene, frame rate = 24p
2:30 min clip VBR 2 = 1:45 min encoding time = 2.85 times faster than real-time. 112 frames/sec ** Remember VBR 2 in reality is 3 passes
4. On a DV codec AVI File format, Frame Size 640x480, Frame rate = 29.97
3:40 min clip VBR 4 = 2:57 min encoding time = 6.22 times faster than real-time. 149.95 frames/sec ** Remember VBR 4 in reality is 5 passes
5. On an AJA 2vuy 8 bit YUV4:2:2 QT mov codec, Frame Size = 720x486, Frame rate = 29.97
30 min clip CBR = 13:01 min encoding time = 2.31 times faster than real-time. 55.40 frames/sec

30 min clip VBR 2 = 39:53 min encoding time = 2.28 times faster than real-time. 54.64 frames/sec ** Remember VBR 2 in reality is 3 passes

30 min clip VBR 4 = 63.92 min encoding time = 4.22 times faster than real-time. 56.32 frames/sec ** Remember VBR 4 in reality is 5 passes
6. On a DVCPRO codec, 16:9, 23.98fps
90 min feature VBR 10 = 2 hours 35 minutes = 4.60 times faster than real-time. ** Remember VBR 10 in reality is 11 passes

9. What are the file Input requirements?

File input formats are handled by Compressor 3 which are based on the available QuickTime codecs currently installed. The Codec's **underlined in Bold** are the preferred and recommended formats for your source content.

Input Video Formats

- QuickTime
 - **Apple ProRes 422**
 - **Animation**
 - BMP
 - Video
 - Cinepak
 - **DV**
 - **DVCPRO**
 - **DVCPRO HD**
 - H.261
 - H.263
 - H.264
 - **JPEG 2000**
 - M-JPEG A
 - M-JPEG B
 - Photo JPEG
 - Planar RGB
 - PNG
 - Sorenson 2
 - Sorenson 3
 - TGA
 - **Uncompressed 8- and 10-bit video**
- MPEG-1
- MPEG-2
 - Elementary
 - Program
- MPEG-4
- AVI

10. What are the File output specifications for standard definition DVD?

Bit rate max 9.8 Mbits/sec DVD spec
Bit rate max. 15 Mbits/sec (MP@ML)
max. 40 Mbits/sec (MP@HL)
Constant Bit rate (CBR) (One pass)
Constant Bit rate (CBR) (Multi-pass)
Variable Bit rate (VBR) (Multi-pass)

Frame size max. 720×576
Frame rate 23.976/24/25/29.97/30 (frames/sec)
Aspect ratio Square pixel, 4:3, 16:9 or 2.21:1
GOP length max. N:15, M:3

11. Is there support for HD?

No CINEMA CRAFT MP is a Standard Definition software engine

Please note, there is support for High Level; a great feature for people who want Standard Definition MPEG-2 content enhanced for High Definition, specifically Blu-ray. In other words, High Level is provided for those who want to encode Standard Definition content at bit rates higher than 15 Mbps.

12. Are we able to do segment based re-encoding?

No. This option is not available in Compressor 3 so therefore is not available using our engine.

13. Can CCE-MP resize HD frame size content to SD frame sizes (DOWN CONVERT)? For example bring in 1920x1080 10 bit uncompressed and create a 720x480 SD MPEG-2 file?

Yes, much like our CCE-SP2 product our plug-in allows you to bring in HD frame sizes such as 1920x1080 and resize (down convert) to SD 720x480 or 704x480. The same is true for the PAL standard as well.

14. Does CCE-MP allow you to resize SD frame size content to HD frame sizes (UP-CONVERT)?

No. CCE-MP is strictly an SD engine from Xstream. Therefore, you're not able to bring in HD content and output HD content either.

15. When I do a VBR 2 pass encode, how many passes are being processed in reality?

As with all of CINEMA CRAFT Encoders when you specify 2 passes you are getting a reality of 3 passes; the first pass is the analysis pass and the next 2 are your encoding passes according to your max, min and avg settings you specify. When using VBR, you are enabling the Virtual Multiple Pass Encoding feature which performs multiple “on memory” passes (between 2 and 8 times) during each physical encoding pass to ensure precise correlation between distortion level and available bit rate before actual output. This feature enables CCE-MP to achieve the highest picture stability and the highest picture quality without unexpected fluctuation in both bit rate and distortion. More information regarding this feature can be found at the following link:
http://www.kenstone.net/fcp_homepage/fcp_homepage_index.html

16. How many passes am I allowed?

CCE-MP allows 99 physical passes for multi-pass encoding. In every physical pass, VMPE runs between 2 and 8 times. The result of analysis is recorded to the video information file and the information in the file is referred to calculate GOP structure, Quantize Matrix and bit allocation. In multiple-pass encoding, this information will be modified again and again, so that a more effective GOP structure, Quantize Matrix and bit allocation can be expected resulting in higher picture quality. In reality, 6-10 is good enough for most media.

17. If I've encoded a source file and want to re-encode the same file with the same settings but more passes, is it additive or does it start from the beginning?

Unlike our Xstream product CCE-MP is not additive. This is similar to pausing an H.264 job during encoding in Compressor, whereby resuming the job starts over at the beginning of the encode.

18. Is the Append option that is available in CCE-SP2 available in CCE-MP?

No, because you cannot concatenate streams using Compressor 3.

19. Is interlaced encoding slower than progressive?

Yes

20. What are the 2 user defined file extensions for your encoded file?

.mpv and .m2v
DVD Studio Pro accepts both

21. Are you able to convert video standards, for example NTSC to PAL or from PAL to NTSC?

Yes, this works both as a function of Compressor 3 and CCE-MP. However, the recommended workflow for standards conversion is the following:

Perform the conversion using Compressor's Frame Controls function, and then encode that output with CCE-MP.

The functions available to CCE-MP are:

- Convert video files between international television standards such as PAL to NTSC, or NTSC to PAL.
- Downconvert high definition (HD) video sources to standard definition (SD).
- Convert a progressive stream to an interlaced one, or interlaced to progressive.
- High-quality frame rate adjustments, including high-quality slow-motion effects.
- Automatically remove telecine pull-down (reverse telecine).

22. Are Compressor's built-on filters usable with CCE-MP?

Yes, all the filters settings can be applied with the Cinema Craft settings on your encodes.

23. Are Compressor's built-in Geometry settings usable with CCE-MP?

Only the Cropping and the Padding settings inside the Geometry Palette of Compressor 3 are available. You are not able to change the Dimensions setting, they are grayed out (fixed), just like the Apple MPEG-2 presets. This is because the DVD spec dictates the frame size.

24. Are Compressor's built-in Frame Control settings usable with CCE-MP?

Yes, this works both as a function of Compressor 3 and CCE-MP. However, the recommended workflow for standards conversion is the following:

Perform the conversion using Compressor's Frame Controls function, and then encode that output with CCE-MP.

25. Can CCE-MP create Transport or Program streams?

No, Elementary streams only.

26. Can CCE-MP work with standard definition 16:9 and 24p assets?

Yes

