

GPU JPEG 2000 Option

Accelerated encode & decode for Baselight

FilmLight



Generate and review Digital Cinema deliverables directly from the Baselight grading system.

The effectiveness of JPEG 2000 compression lends itself to a wide range of uses – including the Digital Cinema Package (DCP). However, reading and writing it is an expensive operation for your system's computing power. Now that DCPs are a common delivery format, with review and rework being an inevitable part of the process, FilmLight has developed a streamlined workflow for DCP generation.

The Comprimate JPEG 2000 encode and decode GPU solution can be incorporated directly into Baselight – so the same application and colour management system that graded the project can quickly generate or regenerate the required DCPs.

Moreover, this option means that future enhancements to Baselight that make use of JPEG 2000 will also be GPU-enabled, making your workflow future-proof.

Speed up your workflow

By integrating this solution into the Baselight renderer, the scene itself can effectively act as the Digital Source Master (DSM). This removes the need to render intermediate DCI-compliant XYZ TIFF sequences as a Digital Distribution Master (DCDM), so the speed of the review* and rework process increases dramatically. It also means you can review the DCP directly on the Baselight system in the same screening room where the grading took place.

And if you need to free up your Baselight system for other work you can even encode the DCP from a DCDM on an inexpensive Baselight ASSIST system and, of course, review the DCP for quality on the same system.

Features

Bit rate

When you use Baselight for DCP mastering, the DCP will be converted (if not already in this format) to 12 bit (X'Y'Z') and then GPU-encoded with JPEG 2000. As the DCI specification limits the data rate to 250 Mb/s, this is the default compression rate; however, you can specify custom rates to guarantee compliance with equipment in your region.

Standards & formats

Baselight supports both common standards in use for the DCP format – Interop and SMPTE.

Acceleration is supported for DCP, JPEG 2000 codestream files (J2C) and JPEG 2000 encoded MXF movies.

Formats larger than 4K may fall back to a CPU implementation, which is still significantly faster than that available without the additional licence.

Encryption

You can create both encrypted and unencrypted DCPs with Baselight; though encryption is normally required for temporary, let alone final, DCPs. Self-encrypted DCPs are created by default – that is, encrypted DCPs where the digital certificate that was used to issue the package can also be used to read it, via a Key Delivery Message (KDM).

The application creates self-signed certificates by default too, but custom default certificates can also be configured in Baselight's DCP preferences.

* 2K or 4K review requires a Baselight system with at least one Titan X GPU.

Specifications

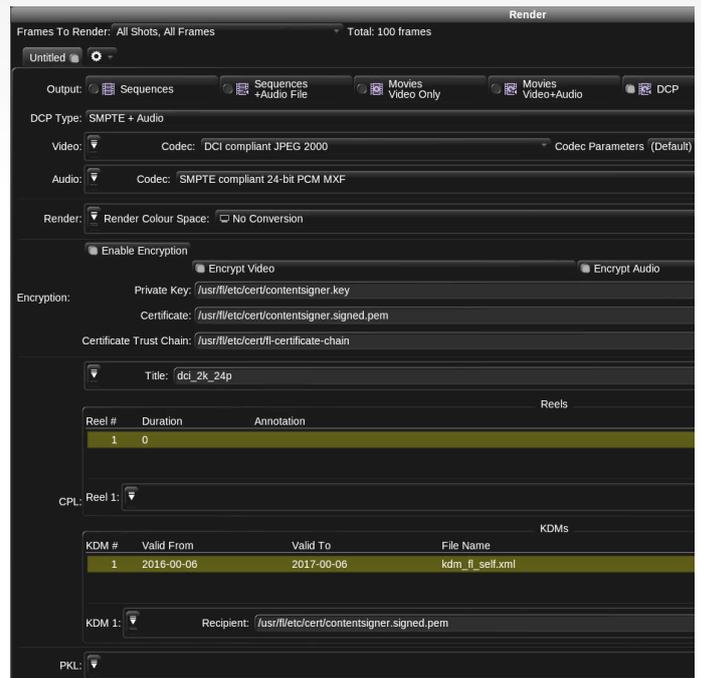
To use the GPU JPEG 2000 option, you will need a Baselight system with the following specifications:

- » Generation V or Generation VI system with Titan X GPUs.

Performance

As JPEG 2000 compression is highly context-dependent, these performance figures are presented as frames per second (fps) of material sourced from two different cameras – a Panasonic Varicam and a Sony F65 – along with computer-generated colour bars.

The systems used are Generation VI Baselight systems equipped with Nvidia Titan X GPUs.



DCP render options in Baselight

Baselight ONE			
Encoding J2K	Varicam	F65	Bars
4096x2160	25	17	44
4096x1716	31	19	55
2048x1080	42	44	118
2048x858	48	58	220

Encrypted DCP			
Encoding J2K	Varicam	F65	Bars
4096x2160	25	16	41
4096x1716	29	19	55
2048x1080	35	43	91
2048x858	37	50	154

Baselight TWO			
Encoding J2K	Varicam	F65	Bars
4096x2160	46	49	103
4096x1716	51	53	110
2048x1080	53	96	171
2048x858	53	96	171

Encrypted DCP			
Encoding J2K	Varicam	F65	Bars
4096x2160	36	41	91
4096x1716	36	49	103
2048x1080	38	69	171
2048x858	41	72	171

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