

DCPB-2100

JPEG 2000 DCI encoder board



Features

- PCIe board, 4 lanes
- Input: uncompressed images or video in RGB or XYZ format
- Output: DCI-compliant j2c codestream
- Custom image size up to DCI 4K in a single tile
- RCT/ICT support
- Configurable rate allocation: constant bitrate or constant quality
- Real-time 2K encoding at 48 fps
- Lossless compression support
- Windows and Linux SDK, including drivers and API

The DCPB-2100 is a PCI-Express acceleration board for performing JPEG 2000 compression. It is compatible with the Digital Cinema Initiative (DCI) and can process 48 frames per second in 2K (2048x1080) resolution.

Featuring a unique rate allocation module, the DCPB-2100 can encode untiled images with resolutions up to 2K DCI format (and optionally 4K). Moreover, its programmable configuration in constant bitrate or constant quality modes allows the user to generate high-quality JPEG 2000 codestreams at various compression factors.

Its compactness makes the DCPB-2100 an excellent alternative to PC clusters, offering real-time encoding capability in a PCIe form factor. In addition it is built on FPGA technology, which offers the advantages of flexibility and upgradeability.

The DCPB-2100 can be used at different stages in the digital cinema workflow, including acquisition, production, archiving and mastering. The uniqueness of the DCPB-2100 is reinforced by the support of true 4K resolution, available as an option.

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Technical specifications

General Data

Power	+3.3V @ 4A maximum +12V @ 1A maximum
Interface	Revision 1.1 compliant x1, x2 or x4 PCIe endpoint compatible
Dimensions	241mm x 111mm "three-quarter length" max component height 15mm
Temperature	Operational: +5...+35°C, humidity <95% non-condensing Storage: -20...+50°C, humidity <95% non-condensing

Interfaces

Through a software API

Inputs:	Uncompressed RGB/XYZ image of any resolution up to 4096x2160, in 4:4:4 color format
Outputs:	Compressed j2c codestream, compliant with DCI

Parameters

Frame size
Sample precision, up to 12 bits
Number of wavelet decompositions, up to 6
Wavelet kernel (5/3 or 9/7)
Rate allocation mode (constant bitrate or quality) and target bitrate/quality
CSF weighting
Color transform (ICT/RCT)
Lossy/lossless

Performances

DCI 2K @ 48 fps
DCI 4K @ 12 fps

Software support

PCIe drivers for Windows XP, Vista and for Linux
SDK with API for controlling the compression parameters and handshaking
the image input and j2c output
Example applications

Options

Support of 4K resolution
Support of 4 quality layers
Additional 4:2:2 support
Encoder + decoder functionality

Request more information

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