

Ultra High Resolution

PRISTINE Application Note

The PRISTINE radically accelerates JPEG 2000 encoding and decoding while supporting a wide range of **resolutions up to 4K+ (4096x3112)**. Combining several PRISTINEs give access to higher resolutions, like the Ultra High Resolution 8K. Embedded intoPIX technology allows both **Mathematically and Visually Lossless** compression providing the ultimate in pristine picture quality.

Using several of the PRISTINE versions answers the challenge of long term ultra-high resolution image storage and exploitation.

Figure 1 illustrates how a single PRISTINE 4 is used for encoding 4K tiles of a mega image. Compared to traditional HD or 2K encoding, PRISTINE 4 drastically reduces the tiling artifacts. On the exploitation side, the content is scaled down to 2K by one PRISTINE 1 board, which decodes the images for display on standard monitors.

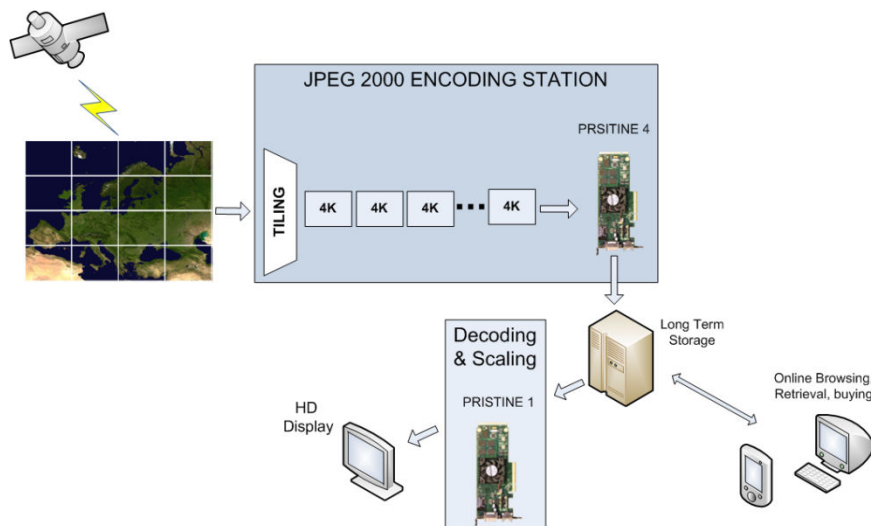


Figure 1. The PRISTINE supports up to 4K untiled images at 24 fps, thereby enabling ultra fast encoding of mega satellite images.

The powerful optional modules of PRISTINE also enable the encryption / decryption of the content. Moreover, the inherent multi-resolution nature of JPEG 2000 allows easily extracting lower version for seamless browsing the images with any standard terminal.

Figure 2 depicts a workflow for encoding 8K images by using four PRISTINE 4 boards. Tiling the source content down to 4K quadrants and feeding the boards allow encoding such ultra large images at a frame rate of 24 fps. This is possible thanks to parallel use of the boards: one more exceptional feature of PRISTINE.

In Figure 3, a real-time quality validation of 4K content is presented. It is based on PRISTINE 4 boards: the first one encoding the content, the second one decoding it for comparing the uncompressed content with the source.



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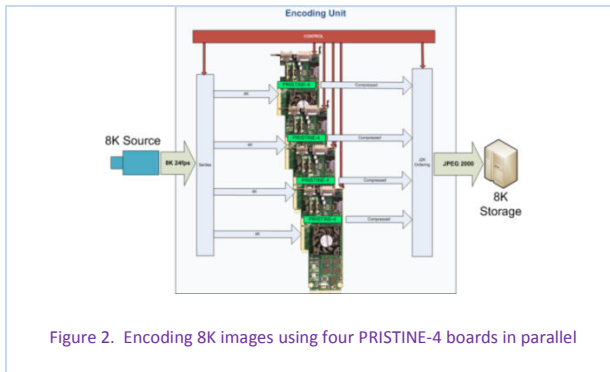


Figure 2. Encoding 8K images using four PRISTINE-4 boards in parallel

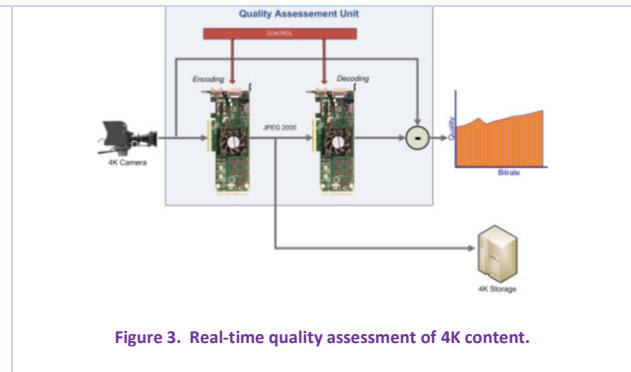


Figure 3. Real-time quality assessment of 4K content.

Key benefits of PRISTINE for archiving

- Very large resolutions supported: up to 4096x3112 (4K+), including 1920x1080 (HD), 2048x1080 (2K), 2048x1556 (2K+) and 4096x2160 (4K).
- Mathematically Lossless and Visually Lossless compression.
- Multiple boards support in one system.
- Very high frame rates: up to 120 frames per second for HD (2K) resolution.
- Scalability: several resolutions or quality versions embedded within a single code stream
- Easily reprogrammable: can be configured as recorder or player.
- OS: Windows, Linux, MacOS X.

Valuable Options of PRISTINE

- The unique **3G-SDI Panel**: 4 inputs and 4 outputs also supporting HD-SDI, Dual-SDI and SDI.
- **Rescaling**: from 2K (HD) to 4K (QuadHD) and reversely. More advanced rescaling are currently under development.
- On-the-fly **Quality control**: using 2 PRISTINE boards enables you to control the quality of the compression in real-time.

Ordering Information

Product Name	Description
PRISTINE 4	Encoding and decoding 4K content at 24 fps through PCIe data file access.
PRISTINE 2	Encoding and decoding 2K content at 24 fps through PCIe data file access.
Optional 3G-SDI panel	4 inputs and 4 outputs, also supporting HD-SDI, Dual-SDI and SDI.
Optional Modules	Encryption, Rescaling, Quality assessment software

For more information, please contact us at:
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