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Next-Gen 3-Dimensional (3-D) Spatial-Temporal Video Noise Reduction (VNR)

Latency-Free 1-Previous-Buffered-Frame VNR Filter

Precoad's next-generation 3-Dimensional (3-D) spatial-temporal video noise reduction (VNR) solutions [significantly improve](#) and are complementary to LCD TVs, mobile phone video cameras and displays, Blu-ray players and production, digital video cameras, video camcorders, sensors, and industrial applications. A key advantage is Precoad's 3-D spatial-temporal VNR solutions can be implemented as a [live, real-time, latency-free](#) 1-previous-buffered-video-frame VNR filter. This visibly and significantly reduces critical temporal noise, whilst preserving video picture features. This innovative patent-protected [anisotropic-diffusion-based spatial-temporal](#) solution is starkly [different](#) from the onerous and burdensome IIR and adaptive filter types of approaches.

Precoad's groundbreaking, [visibly superior, lowest implementation-cost](#) family of 3-D VNR solutions for video provides the following feature set:

- [Complementary](#) -- also removes video content noise (caused for example by film grain noise, camera-capture device hardware, poor lighting, video reproduction) that is NOT removed by other algorithms and/or hardware device
- Additionally reduces various ***DIFFERENT*** type of spatial-temporal noise contamination
 - including both "external" noise and "internal" noise
- Can be [integrated in combination with any other existing NR \(such as 2-D spatial only\)](#), or as stand-alone independently
- Improves NR performance for [visibly superior](#) video picture quality, and preserves and does not destroy nor lose video picture features
- Lowest complexity for [lowest-cost](#) implementation
- Without tailing nor ghosting effects
- [No additional latency](#)
- Needs only **1 previous buffered video frame**, but [NO future frames](#)
- Rapid product integration

The “game changing” market opportunity enabled by Precoad's 3-D VNR is [higher product-quality levels at lower product-cost levels](#) in the fiercely picture-quality competitive video landscape -- from the sensor level to the camera level to the display level to the IC level. The critical differentiating key is our highly sought “latency-free” advantage, without compromising video picture-quality, without onerous implementation complexity and cost.

Precoad 3-D VNR results for video test sequences for major chip manufacturers are quite dramatic. These tests are commonly used patterns in video test and measurement systems.



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Their purpose is to stress the system and observe system behavior under controlled conditions. The VNR must be capable of recognizing noise and noticeably reducing noise level without unacceptable or visible degradation in the original video pattern.

You are invited to come and view live real-time simultaneous side-by-side demos of Precoad's next-gen 3-D spatial-temporal VNR, for live comparison of video picture quality before and after application of Precoad's next-gen 3-D spatial-temporal VNR.