A technology serving the global AV industry

TICO compression is new patent-pending visually lossless compression specifically designed for the industry. This revolutionary technology is fast and powerful in software (CPU) and extremely tiny in hardware (FPGA, ASIC), robust for real-time operation with no latency.

Up to now, image and video are sent or stored uncompressed into many displays and systems such as cameras, videos servers or recorders. TICO is a smart upgrade path to manage higher resolutions (4K, 8K …) and frame rates while assuring visual quality, keeping power and bandwidth at a reasonable budget and reducing significantly the complexity and cost of the system.

Technology benefits

- Visually Lossless quality up to 4:1.
- Persistent and Robust: Indistinguishable image loss over multiple generations.
- Fixed latency: down to microseconds
  Selectable from 1 to X pixel lines.
- Small complexity and ultra-compact codec: easy to implement in low-cost ASIC / FPGA. Limited internal memory - no external memory required.
- Powerful, Real-time or faster than real-time in CPU.
- Compatible with different resolutions, from mobile, HD to 4K/8K UHDTV, via multiple usual transport schemes.
- Designed to be a standard for industry-wide support: TICO compression technology is available on multiple software and hardware technologies. Code, hardware IP-cores and software libraries are licensable from intoPIX.
TICO is a smart solution to

- Support Higher data stream using existing systems & infrastructures (HD/4K/8K/HFR).
- Increase the stream configuration.
- Reduce the internal video bandwidth (and power!).
- Cost effectively increase video buffer and storage capacity.
- Reduce the number of lanes needed to transport a stream at a display interface or at an image sensor to save power, cost or both.

Software implementation

- Color modes: 422 and 444, RGB, YCbCr, XYZ.
- Bit Depth : 8, 10 or 12.
- Resolutions : Any up to 8K (8192 x 8192).
- Frame Rates : Depending on CPU performance.

Image features

- (Sub) Intra-frame.
- Designed for real-time operation in CPU (no overflow or underflow).
- Allows high speed parallel processing in a multiprocessor environment.
- Latency - About 1 frame.
- Slice support: Support partial update of compressed frame buffers via compressed data, using slices.

Quality and Bit Rate Control

- Adjustable compression rate for Lossy/Visually lossless/Math. lossless.
- CBR (constant bit rate) operation (optional capped VBR mode).

SDK environment requirements

- OS : Microsoft Windows 7/8 or newer & Linux.
- CPU : Intel-compatible CPU (SSE4.1 or newer).

SDK Releases

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<th>Visually Lossless with 404 Bps (in bps***)</th>
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| IPX-Tico1/8K-SDK-Dec | max 6bpp (4:1) | max 5bpp 14:1 | UHD/8K | 1 | NOW |
| IPX-Tico2/8K-SDK-Dec | max 6bpp (4:1) | max 5bpp 14:1 | UHD/8K | 2 | 2015 |
| IPX-Tico1/8K-SDK-Enc | max 6bpp (4:1) | max 5bpp 14:1 | UHD/8K | 1 | 2015 |
| IPX-Tico2/8K-SDK-Enc | max 6bpp (4:1) | max 5bpp 14:1 | UHD/8K | 2 | 2015 |

4K UHD Decoding Performance of IPX-TICO1-SDK

(3840x2160 - 4:2:2 - 10bpp compression)

- Ask for your flavor.
- **bpp = bit per pixel. Example: a 444 8 bit picture equals to 24 bit per pixel (bps).
- Compressed at 12bpps, it is equivalent to 2:1 compression.
- *** At 4.1, Profile 2 provides better quality than Profile 1 at short viewing distance (< 60 pixels per degree).