Cinema Craft Ultra™

For the past 2-decades the Cinema Craft© products have grown to become the reference encoders selected by leading video post-production studios worldwide. Best known for quality, ease of use and faster than real-time encoding speeds, they have evolved to become ing much sought after for achieving pristine results and on-time delivery. The majority of DVD and Blu-ray titles released by Hollywood studios such as Disney, Buena Vista, Pixar, DreamWorks, FOX, Paramount, Criterion, Warner Bros. and SONY Pictures, as well as Toei Labo, Constantin Film and many Bollywood studios all have one thing in common – Cinema Craft's quality.

Following Intel's recent product announcement at IBC 2015, all this is about to change!!

Cinema Craft Ultra TX - "Prism of Life" – Gogol Loebmeyr

Following Silicon Philosophies' 2011 acquisition of the Cinema Craft© trademark, the new owners moved to broaden the product's user-base by entering into a development partnership with Dutch creative software company Assimilate. The integration of the H.264 encoding engine into their Scratch color-grading application, helped Cinema Craft gain popularity and acceptance amongst this young and talented video community. Silicon Philosophies went even further by adding modifications which made the product compatible with commonly used input formats, which led to an increase in its effectiveness.

Similar collaboration with engineering partners Ittiam Systems during the past year has resulted in a series of breakthrough products, collectively referred to as Cinema Craft Ultra™, which are based on Ittiam's i265 technology and the recently announced Intel® Visual Compute Accelerator (VCA) PCIe card.

Cinema Craft Ultra™ is Silicon Philosophies' newest product designed for complex, HEVC/H.265 encoding computation. It provides High Dynamic Range (HDR) REC.2020 support, film grain retention, multi-pass encoding and segment re-encoding. Most significant is the adaptive bit rate (ABR) feature, which enables up to 35x variations of bitrates and resolutions to be generated in parallel from a single source. This would require lengthy processing times were it not for the VCA, which bolsters 4K HEVC processing by up to 60x frames per second. Encoding performance can be improved even further by scaling multiple VCA cards!

"We congratulate Intel on their foresight in recognizing and addressing the needs of the video processing community. Similarly, we commend Ittiam for their ingenuity to understand VCA to the extent where they've developed cutting-edge technology (based on its architecture) in such a short time frame", remarked Silicon's CEO, Miguel Clarke. "When combined with High-performance computing (HPC) hardware, VCA could revolutionize not only broadcasting, but communications on a whole", Clarke predicts.

Silicon Philosophies have named their new products in honor of VCA developer and engineer, Tomasz Madajczak (Intel, Gdańsk Poland). They intend to deploy multiple Cinema Craft Ultra TX configurations based on VCA technology during the coming weeks targeted towards traditional video post-production, but providing over-the-top (OTT) functionalities in addition.

About Silicon: Silicon Philosophies (formerly Front Porch Video) engineered the world's first MPEG2 encoder for Toshiba and Warner Bros in 1996. They provide customized hardware, software and workflow solutions geared towards video post-production, broadcast, internet and aviation deployed in several automated DVD, Dolby AC3, media archiving, video streaming and noise filtering applications.

About Ittiam: Ittiam Systems is a global technology company with deep R&D driven solutions for media creation, management and consumption, providing advanced media codecs, software development platforms, systems and workflows for embedded and online applications. Its solutions are at the heart of tens of millions of lifestyle products that drive mobility, content access, networking and sharing.

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Highlights:

- Pristine quality (PQ) 2-pass constant (CBR) and variable bitrate (VBR)
- Multi resolution (MRES) and adaptive bitrate (ABR)
- Produces HEVC Main 10 Profile, Rec. ITU-T H.265 (10/2014) Blu-ray compliant streams confirmed based on Panasonic UHD verifier
- Supports SDR, UHD and HDR (High Dynamic Range) with BT.709/REC.2020 color space
- Accurate segment re-encode capability
- Supports all standard frame-rates (23.976 - 60p)
- Supports resolution from 320x240 (QVGA) up to 4096x2160 (UHD/4K) – image width and height in multiples of 2
- Encode a wide range of file types and formats
  Input: YCbCr 4:2:0 (Semi Planar) and 4:2:2 in 8/10/12-Bit
  YUV, AVI, MOV, HQX, MXF, J2000, ProRes HQ/422/444, PNG, DPX, TIFF
- Output: Annex-B byte-stream
- Compatible with Jargon Indigo Ultra™ for Ultra HD Blu-ray authoring

Features and toolsets:

- I, P, B pictures
- Multiple reference pictures
- Up to 4 temporal hierarchies (dyadic at all layers)
- Automatic optimal CU size determination (64 to 8)
- Automatic optimal TU size determination (32 to 4)
- Intra prediction unit sizes from 32 to 4 (and support for all Intra prediction modes)
- Inter prediction unit sizes from 64x64 to 8x8
- Asymmetric and symmetric motion partitions
- Quarter pixel accurate motion estimation / compensation
- RD-optimized mode selection
- In-loop de-blocking Filter
- Open-GOP (CDR) and closed-GOP (IDR)
- Perceptual quality based QP modulation
- Weighted prediction
- Wavefront parallel processing (WPP)
- Uniform and non-uniform tiles
- Sample adaptive offset (SAO)
- Dependent slices
- Look ahead processing (LAP)
- Configurable number of look-ahead frame buffers
- Ability to insert AU delimiters
- Optimized to configure and utilize all available threads
- SIMD optimizations with support for SSE4.1, SSE4.2, AVX1.0/2.0

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- Interlaced support with field separated input format
- Insertion of VUI and SEI timing information
- Available as a plugin for integration with existing encoding /transcoding workflows
- Windows 7, 8.1, Server 2012 (64-Bit) plus Linux platforms

Hardware requirements:

SuperWorkstation 7047GR-TRF
2x Intel Xeon E5-2687v3, 3.1GHz, 10-Core (Haswell)
8x 8GB DDR4-2133 ECC REG DIMM
Nvidia Quadro 600, 2GB DDR3
Intel® Visual Compute Accelerator
Intel® SSD 750 Series, 2TB, PCIe x8
CoolIT ECOIII-120FB-CPU
8x 512 GB Samsung EVO SSD
8x 4TB WD4000FYYZ SE SATA III, 6Gbs

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