New Solutions for Cloud-based Media Processing Demands

Intel and nablet work together to offer new levels of performance in processing graphics-intense workloads

nablet

nablet is a leading provider of media processing technologies for the broadcast and entertainment markets. Founded in 2011, their focus is on developing technologies for automated content recognition. nablet's products seamlessly integrate with other partners and vendors to enable reliable, turnkey broadcast solutions.

An Explosion of Devices and Data

Media consumption across the globe is increasingly happening in digital formats. The explosion in the number of devices capable of supporting digital media, from TVs to laptops to smart phones - along with the sharp increase in internet bandwidth has given consumers more and more options to access the media they want, when they want.

From video streaming to remote workstation, more content is being delivered via cloud computing every day, requiring new architectures and approaches to hardware deployments.

Ubiquitous use of video and other visual media now require economical, fast, and high quality transcoding of content to support user demands.

To successfully deliver high-quality content to end users, service providers and broadcasters must find ways to quickly and efficiently transcode video from one compressed format to another, while taking into consideration the requirements of an ever increasing number of viewing devices with different bit rates, quality and screen size requirements.

New Solutions for Graphics Workloads

Intel helps meet the growing demands of cloud-based visual computing, also known as the "visual cloud," by powering solutions for video delivery, cloud graphics, and visual understanding workloads.

The Intel® Xeon® processor E3-1200 v4 product family, now integrated with Intel's most powerful data center graphics, Intel® Iris™ Pro graphics P6300, enables cloud service providers and content owners to meet cloud-based graphics demands like high-definition video streaming to help deliver better user experiences.

Built on 14nm process technology, this latest generation of Intel Xeon processors offers new levels of performance for graphically-intensive workloads such as video transcoding, graphics/media delivery and remote workstation applications.[1]

In addition, Intel® Quick Sync Video uses the dedicated media processing capabilities of Intel® Graphics Technology to make media processing, and video creation and conversion fast and easy. Intel Quick Sync Video is a hardware-based media acceleration technology available in Intel processors that support Intel® HD graphics, Iris™

graphics, and Iris™ Pro graphics. It offers speed increases for media processing deployments.[2]

Ultra-fast, efficient transcoding leveraging Intel technology

nablet mediaEngine* is a transcoder for live and file based workflows that facilitates the encoding of video and audio media to a variety of acquisition, editing, broadcast and web formats. mediaEngine runs either stand-alone or within a multi-node rendering farm controlled by 3rd party applications. It takes advantage of graphics processing units (GPUs) incorporated in the Intel Xeon processor E3-1200v4 family and supports either Windows* or Linux* operating systems.

nablet mediaEngine has an integrated ultra-fast threading model that makes maximum use of the given resources. Transcoding speed is maximized as the internal used nablet video codecs are also optimized to the internal workflow. Specially optimized encoders and decoders for specific formats like XDCAM give further advantage against standard multi-purpose codecs. mediaEngine is designed to allow highest possible scalability to set up cluster and cloud based media processing and high density

transcoding solutions.

Time critical ingest jobs that media companies face today are optimized by using mediaEngine's MXF while-function. It greatly reduces latency by processing MXF files while reading or writing.

nablet mediaEngine allows file based stitching and transcoding using simple configuration files, even with live ingest into MXF.

In addition, mediaEngine takes full advantage of a GPU-accelerated processing pipeline that includes Intel Quick Sync Video-based encoding and decoding, as well as other functions like scaling, inverse telecine, etc.

Summary

Intel® architecture provides flexibility, quality, and TCO optimization for visual cloud solutions. Whether hosting desktops and workstations remotely or delivering video in the cloud, the graphics performance of the Intel® Xeon® processor E3-1200 v4 with Intel® Iris™ Pro graphics P6300 can provide the rich visual experiences end users seek.

For more information on Intel® Xeon® processor E3-1200 family, visit:
http://www.intel.com/content/www/us/en/servers/data-center-graphics.html

For more information on video transcoding solutions from nablet, visit:
http://www.nablet.com/products/codecs-and-streaming/nablet-mediaengine/

HIGHLIGHTS

- Object-oriented C++ interface with an "ultra-fast" asynchronous threading model
- Plug-in interface to integrate 3rd-party modules (DirectShow, Media Foundation, QuickTime, GStreamer, AviSynth etc.)
- 8-bit 4:2:0 GPU accelerated transcoding
- 10-bit 4:20/4:2:2 HEVC GPU accelerated encoding
- 10-bit 4:2:2 high quality software based transcoding (nablet codecs)
- Supports all Intel® Xeon® Processors with HD Graphics
- Multi-platform OS support: Windows*, Linux* and Macintosh*
- Smart Rendering for MPEG-2 based video like XDCAM or XDCAM HD family of formats
- Smart Rendering for AVC-I and X-AVC video

SPECIFICATIONS

Video Codecs:
- H.264/AVC, 8-bit GPU accelerated / 10-bit 4:2:2 Software only
- AVC-Intra
- Sony XAVC including Long GOP
- DV25/DVCPRO, DVCPRO 50, DVCPRO 100/HD
- IMX, XDCAM HD family
- MPEG-2, MPEG-1
- MPEG-4 Part 2/H.263 (decode only)
- DNxHD (optional)
- HEVC Software and Intel GPU accelerated
- MJPEG and JPEG

Audio Codecs:
- PCM
- MPEG Audio Layer I/II/III
- AAC LC/HE

Media Containers:
- QuickTime (MOV)
- HDV
- MXF
- MPEG-1 SS
- MPEG-2 PS/TS
- MP4
- AVI/WAV

Streaming protocols:
- UDP/RTP
- HLS
- RTMP
- DASH
- Growing file support for Amazon* Simple Storage Service (S3)

Capture Devices:
- DirectShow Capture
- Media Foundation Capture

Advanced operations:
- Scaling with sub-pixel rendering
- Segmentation / scene detection
- High quality de-noising and de-interlacing
- Video Overlay
- Video stitching from various input files
- Video finger-printing
- Fully functional command-line sample application with presets