PERSEUS™ XDE / XSA

Ultra-density Video Encoding

- **Increase throughput by up to 4x: 4Kp60 or multiple HD streams per card**

- **Deliver higher quality at up to 50% lower bitrates**

- **Simple deployment for existing or new encoding operations**

V-NOVA

INTRODUCTION

Hyperscale video services like social and e-sports networks need to encode and serve vast numbers of streams to their users. The server infrastructure required to satisfy this demand is often the largest cost for these businesses. PERSEUS running on Xilinx FPGA enables any service operating private cloud to radically transform their efficiency, reducing operating costs by up to 4x whilst improving the streaming quality-of-service for their users. Furthermore, public or private clouds can deploy PERSEUS on Xilinx® Alveo™ Data Center accelerator cards as an ultra-dense encoding solution to offer significant quality and cost benefits to their video delivery customers.

PERSEUS Plus is a unique video encoding technology that significantly enhances the quality and throughput of any standard encoder such as AVC/H.264, HEVC, VP9, and – in the future - AV1. When combined with a Xilinx FPGA, PERSEUS Plus provides the highest density encoding solution in the market enabling use cases such as live 4Kp60 encoding on a single card. Playback is supported on a broad range of devices as PERSEUS Plus leverages the hardware decoding capabilities of the underlying codec already present.

PRODUCT OVERVIEW

Xilinx FPGA support PERSEUS Plus in two available configurations:
- **PERSEUS XSA** is a single board FPGA acceleration solution providing up to 4x throughput increase on existing codec deployments, whether in software or in hardware.
- **PERSEUS XDE** offers unparalleled encoding density as a self-contained solution for PERSEUS with HEVC and other codecs running entirely on a single Xilinx FPGA board.
Both solutions are easily deployable on the Xilinx Alveo portfolio using standard FFmpeg based software workflows.

SOLUTION OVERVIEW

Ultra-density transcoding
The unique efficiency of PERSEUS Plus enables:
- Live 4kp60 or multiple HD streams per card
- Increase the throughput of existing servers by up to 4x
- Reduced power consumption per channel
- Reduced transcoding costs per channel

Codec agnostic
PERSEUS Plus increases the performance of all major codecs:
- x.264   • VP9   • NGCodec HEVC
- x.265   • QSV   • NGCodec VP9   • and more…
Additional codecs can be added with a simple plug-in provided by V-Nova
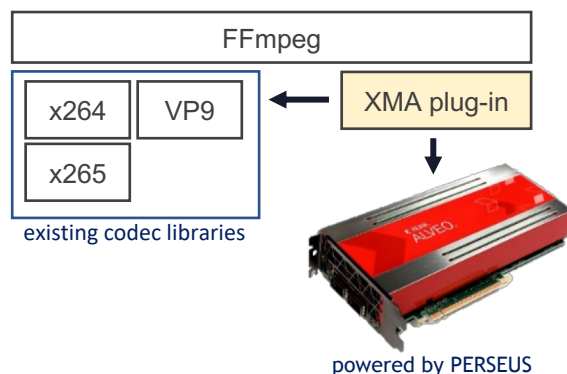
Improve Video Quality

PERSEUS Plus encodes a higher quality picture on top of base video encoded with an existing codec. The combined stream is up to 50% more efficient, greatly reducing bandwidth and increasing video quality.

QSV (H.264)

PERSEUS Plus (H.264)

Broad Device Support

PERSEUS Plus leverages the hardware decoding capabilities of the underlying codec and can therefore be rolled out to the vast majority of devices already in the field with simple software updates.

FFmpeg

x264   VP9

XMA plug-in

x265

existing codec libraries

Easy Deployment

PERSEUS XSA and XDE come with easily configurable software that leverages both existing codecs and the PERSEUS Plus FPGA implementation. The library is integrated within an FFmpeg workflow, which means that a simple change of less than 20 characters enables PERSEUS acceleration or encoding.
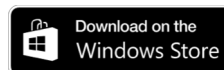
powered by PERSEUS

CONCLUSION

Many large-scale video service operators continue to deliver legacy H.264 video streams and encode them on general purpose CPUs. But today, it's possible to transform the efficiency of video encoding and to leverage dedicated processing capabilities which are far more tailored to intense applications like transcoding.
PERSEUS Plus running on a Xilinx FPGA delivers industry-leading compression efficiency that fully embraces these processing capabilities to provide a step-change in encoding density, vast operating cost reductions, and QoE increases for services running at scale.

NEXT STEPS

Contact V-Nova today to set up an evaluation of PERSEUS XSA to accelerate your existing encoding operation or XDE for dedicated new deployments. And download the V-Nova app to experience example PERSEUS Plus streams.

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