

DEEPFIELD-SR-DEEP LEARNING BASED VIDEO SUPER RESOLUTION ACCELERATOR

INTRODUCTION

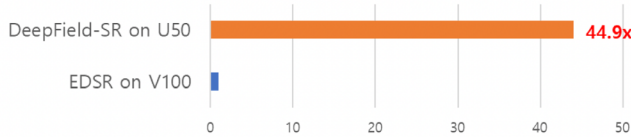
DeepField-SR is a fixed functional hardware accelerator leveraging AMD Alveo Cards to offer the highest computational efficiency for Video Super Resolution. Based on proprietary Neural Network trained with real world video data from the internet and fusing spatio temporal information in multiple frames, it produces superior high resolution video quality.

BENEFITS

Comparing with EDSR(NTIRE 2017) on Tesla V100

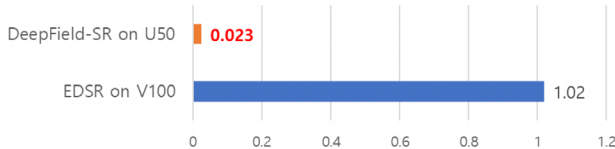
- 45x faster than GPU

Upscaling 360p to 1440p throughput (FPS)



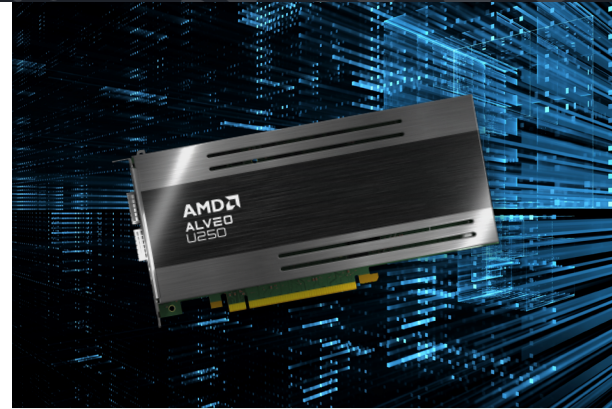
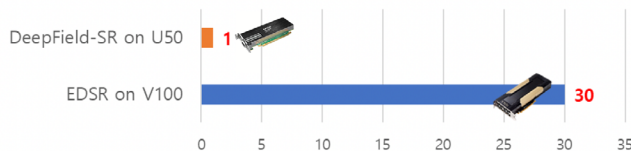
- 0.03 better quality assessment in LPIPS metric than EDSR
- 44x lower latency than GPU

Upscaling 360p to 1440p latency (SEC)



- 1x FPGA card required

of cards required to upscale 360p30 to 1440p30

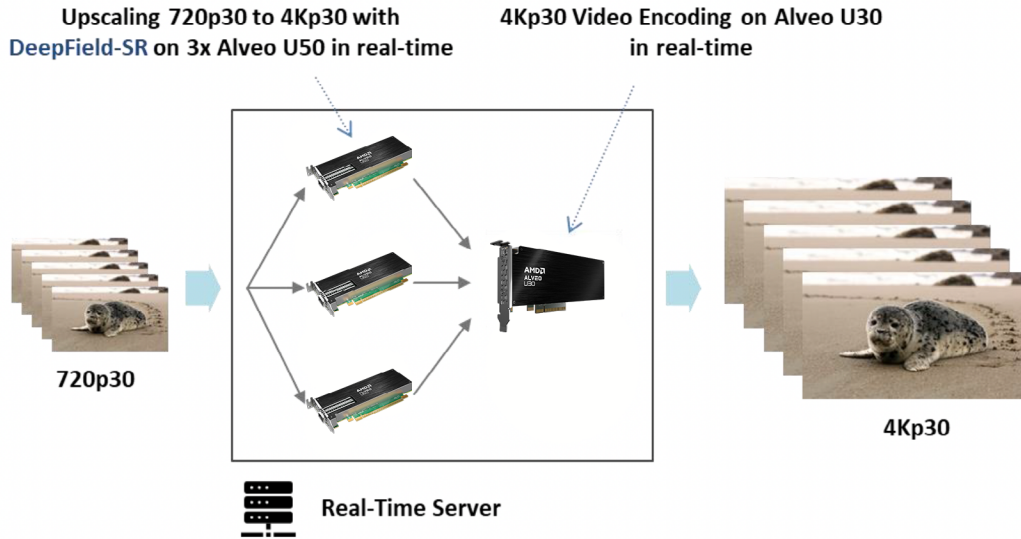


KEY FEATURES

- A fixed functional hardware accelerator offering high throughput
- Scalable architecture to support multiple FPGA cards
- Low upscaling latency
- Deep Neural Network suitable for resource limited FPGA
- Deep Neural Network trained with real world video data
- Designed with High Level Synthesis
- Easy to update and upgrade per market demands

SOLUTION OVERVIEW

DeepField-SR is deployable on both public cloud and on premise with AMD Alveo U200/U50 Accelerator Cards. As it is designed in scalable architecture and supports multiple FPGA cards, it can flexibly respond to various resolution upscale request. Its runtime performance on single Alveo U50 is 11 ~ 14fps to upscale video up to 4K resolution. The API is integrated within an FFmpeg workflow, meaning that simple command enables DeepField SR acceleration and upscaling user input video.



NEXT STEPS

- Learn more about [BLUEDOT Inc.](#)
- For DeepField SR quality evaluation, please visit <http://kokoon.cloud>
- Reach out to BLUEDOT sales at sales@blue-dot.io

DISCLAIMERS

The information contained herein is for informational purposes only and is subject to change without notice. While every precaution has been taken in the preparation of this document, it may contain technical inaccuracies, omissions and typographical errors, and AMD is under no obligation to update or otherwise correct this information. Advanced Micro Devices, Inc. makes no representations or warranties with respect to the accuracy or completeness of the contents of this document, and assumes no liability of any kind, including the implied warranties of noninfringement, merchantability or fitness for purposes, with respect to the operation or use of AMD hardware, software or other products described herein. No license, including implied or arising by estoppel, to any intellectual property rights is granted by this document. Terms and limitations applicable to the purchase or use of AMD's products are as set forth in a signed agreement between the parties or in AMD's Standard Terms and Conditions of Sale. GD-18

COPYRIGHT NOTICE

© 2023 Advanced Micro Devices, Inc. All rights reserved. AMD, the AMD Arrow logo, Versal, Vitis, Vivado, and other designated brands included herein are trademarks of Advanced Micro Devices, Inc. PCIe is a trademark of PCI-SIG and used under license. Other product names used in this publication are for identification purposes only and may be trademarks of their respective companies.