

# DeepField-SR – Deep Learning based Video Super Resolution Accelerator

## INTRODUCTION

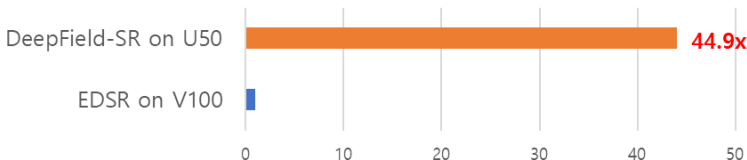
DeepField-SR is a fixed functional hardware accelerator leveraging Xilinx Alveo Cards to offer the highest computational efficiency for Video Super Resolution. Based on proprietary Neural Network trained with real world video data from the internet and fusing spatio-temporal information in multiple frames,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

## BENEFITS

### Comparing with EDSR(NTIRE 2017) on Tesla V100

> 45x faster than GPU

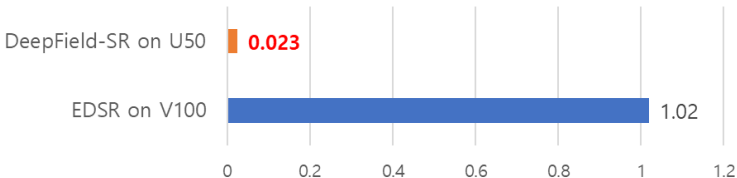
#### Upscaling 360p to 1440p throughput (FPS)



> 0.03 better quality assessment in LPIPS metric than EDSR

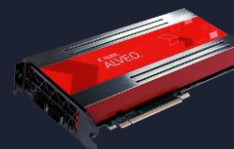
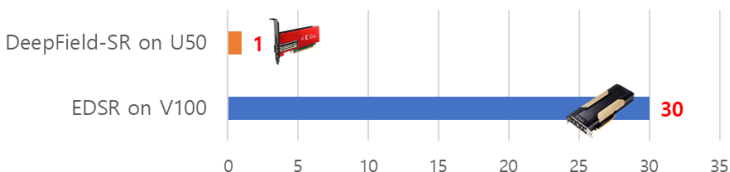
> 44x lower latency than GPU

#### Upscaling 360p to 1440p latency (SEC)



> 1x FPGA card required

#### # of cards required to upscale 360p30 to 1440p30



## Key Features

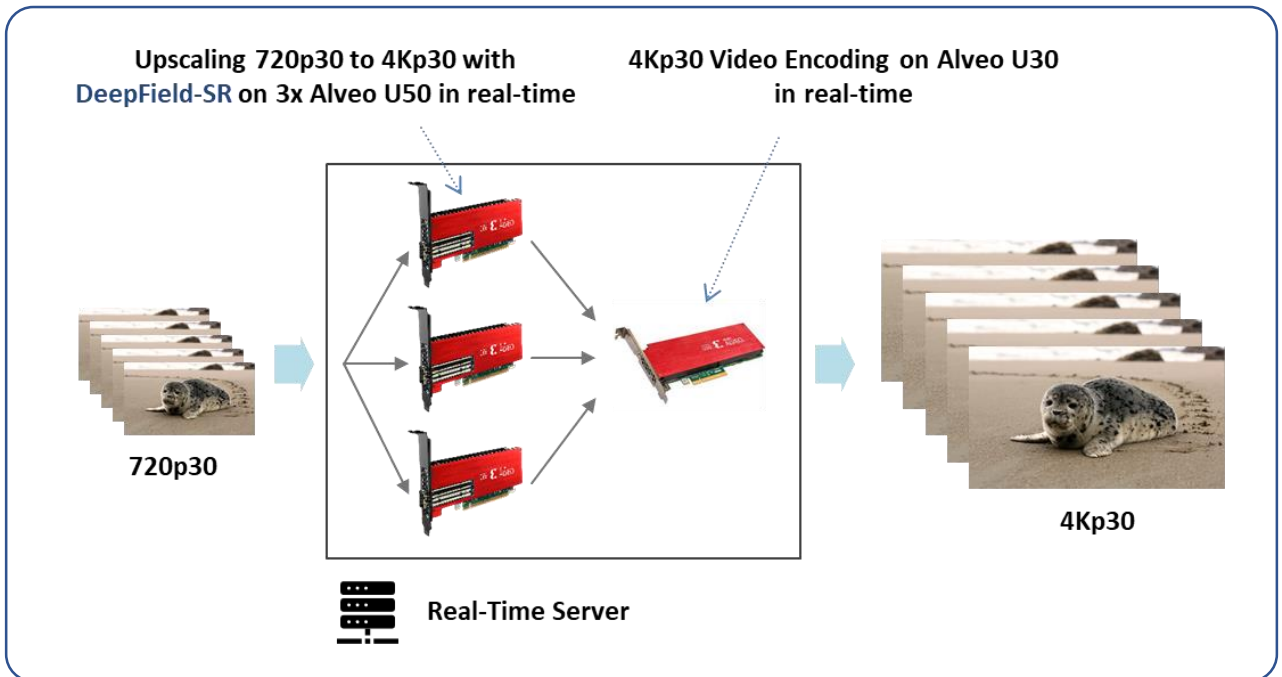
- > A fixed functional hardware accelerator offering high throughput
- > Scalable architecture to support multiple FPGA cards
- > Low upscaling latency
- > Deep Neural Network suitable for resource limited FPGA
- > Deep Neural Network trained with real world video data
- > Designed with High Level Synthesis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



Adaptable. Intelligent.

## SOLUTION OVERVIEW

DeepField-SR is deployable on both public cloud and on-premise with Xilinx 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.



## TAKE THE NEXT STEP

Learn more about [BLUEDOT Inc.](https://www.bluedot.io)

For DeepField-SR quality evaluation, please visit <http://kokoon.cloud>

Reach out to BLUEDOT sales at [sales@blue-dot.io](mailto:sales@blue-dot.io)

### Corporate Headquarters

Xilinx, Inc.  
2100 Logic Drive  
San Jose, CA 95124  
USA  
Tel: 408-559-7778  
[www.xilinx.com](http://www.xilinx.com)

### Europe

Xilinx Europe  
Bianconi Avenue  
Citywest Business Campus  
Saggart, County Dublin  
Ireland  
Tel: +353-1-464-0311  
[www.xilinx.com](http://www.xilinx.com)

### Japan

Xilinx K.K.  
Art Village Osaki Central Tower 4F  
1-2-2 Osaki, Shinagawa-ku  
Tokyo 141-0032 Japan  
Tel: +81-3-6744-7777  
[japan.xilinx.com](http://japan.xilinx.com)

### Asia Pacific Pte. Ltd.

Xilinx, Asia Pacific  
5 Changi Business Park  
Singapore 486040  
Tel: +65-6407-3000  
[www.xilinx.com](http://www.xilinx.com)

### India

Xilinx India Technology  
Services Pvt. Ltd.  
Block A, B & C, 8th, 12th and 13th Floors,  
Meenakshi Tech Park, Survey No. 39,  
Gachibowli (V), Serilingampally (M),  
Hyderabad – 500 084 India  
Tel: +91-40-6721-4747  
[www.xilinx.com](http://www.xilinx.com)

OPTIONAL



© Copyright 2019 Xilinx, Inc. Xilinx, the Xilinx logo, Alveo, Artix, Kintex, Spartan, Versal, Virtex, Vivado, Zynq, and other designated brands included herein are trademarks of Xilinx in the United States and other countries. All other trademarks are the property of their respective owners.

Printed in the U.S.A. Initials Date © Copyright 2020 Xilinx