

## Xilinx MLPerf v1.0 Inference Demo on Alveo VCK5000

### INTRODUCTION

MLPerf.org issued its third round of inferencing result (MLPerf Inference v1.0). In this benchmark, Xilinx has achieved a result of ResNet-50 inference throughput at 5,921 FPS (available category, server model, single card) using the latest Versal ACAP PCI-e card VCK5000 for Data Center. Outperformed T4 5,423FPS performance under the same mode.

As the inventor of the FPGA and adaptive SoCs, Xilinx adaptive computing devices enable Domain-Specific Architectures (DSAs) optimized for AI inference and associated pre/post-processing workloads. They support not only fast AI inferencing but also end-to-end application acceleration.

With the powerful software AI development platform Vitis AI, developers could take models trained using TensorFlow, Caffe or PyTorch, and compile, quantize and optimize for Xilinx's software-programmable adaptive computing platforms without hardware development know-how



# MLPerf

 XILINX  
ALVEO™

### Key Features

- > Optimized DPU architecture
- > Support batch computing
- > Standard workflow with Vitis AI
- > Optimized compiler strategy
- > Optimized device power



## DEMO OVERVIEW

In this demo, you will get the containerized MLPerf v1.0 benchmark demo on VCK5000, including the preset AI acceleration engine DPUv4E for Versal, compiled and deployed ResNet-50 model, and the software dependencies.

### Demo performance:

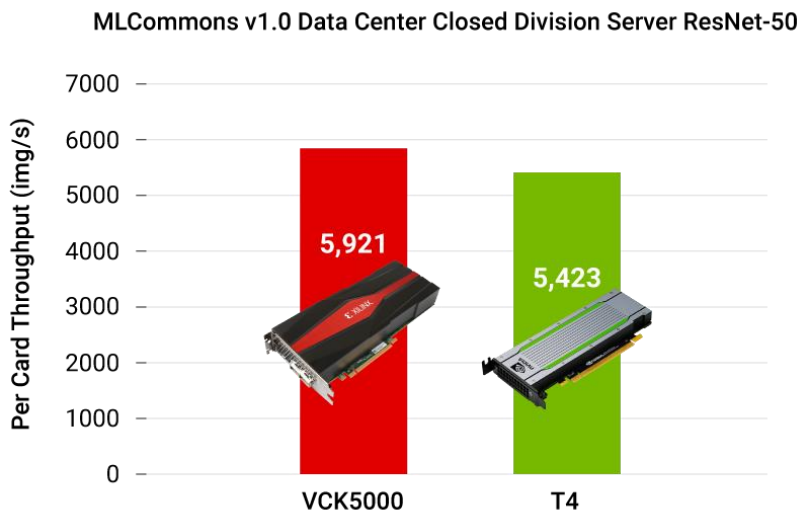
- 1.2GHz AIE: Server 5269 FPS / Offline 5732 FPS

*Note: we recommend to use the default clock frequency at 1.2GHz to run this demo.*

## MLPERF V1.0 SUBMISSION RESULT

### AMD Server + DPUv4E @VCK5000 end-to-end performance:

- 1.33GHz AIE: Server 5921 FPS / Offline 6257 FPS



## TAKE THE NEXT STEP

- Download the demo and get the accelerated performance on your VCK5000 card.
- Contact with Xilinx for more details [bingqing@xilinx.com](mailto:bingqing@xilinx.com)

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