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“OctoML announced in the collaboration with AMD to support of Apache TVM” in Nov’21

Easy ML applications’ deployment to AMD CPUs, GPUs, and APUs with peak efficiency and optimal power

Expanding TVM support to Adaptive HPC Platforms
ACCELERATING FACE DETECTION ON AMD GRAPHICS FEATURING THE AMD RDNA2 ARCHITECTURE USING TVM

AMIR KHOJASTE, MEI YE, WILSON YU
Using convolutional neural network to detect human faces
AMD RDNA2 GPUs support integer dot product instructions.

SPIR-V integer dot product extension was ratified in August 2021 for Vulkan 1.2.190.

AMD proprietary Vulkan driver supported SPIR-V integer dot product for RDNA2 GPUs.

We added SPIR-V code generation for conv2d_NCHWc_int8.cuda, dense_int8.cuda, group_conv2d_NCHWc_int8.cuda.

Vulkan SDK 1.2.198 is available for download on Nov 22, 2021.
ISSUES OF INT8 MODELS

- Usage of composite operators like QLinearAdd and QLinearConv in ONNX introduces redundant pairs of requant/dequant and quant/dequant.

- Overhead of quant/dequant surrounding operators lacking quantization support.

- Overhead of layout transformations surrounding int8 operators with different layouts.

- ML frameworks (TF, PyTorch, ONNX Runtime) does not support conversion of int8 models between different formats.
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– Markham, Canada
– Shanghai, China
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THANK YOU
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