DNNWEAVER v2.0: From Tensors to FPGAs

Open-Source Specialized Compute Stack for Deep Learning on FPGAs
Open Hardware Acceleration Initiative (OHAI)

www.dnnweaver.org

High-level DNN Model

DNNWEAVER Bridges the Semantic Gap

FPGA Acceleration

Compiler
High-level DNN specification in Caffe

OHAI Abstraction Layer
DNNWEAVER ISA

Macro Dataflow Graph

Design Planner

Hardware
Flexible # PEs

Slices are scheduled onto PUs

Schedule

Accelerator Core

Design Weaver

Accelerator Configuration

State-Machines and Micro-Codes

Scheduler

Generates Memory Interface

Static Data Marshalling

Memory Interface

FPGA
CPU
GPU

Speedup / ARM A15

Power (Watt)

Arria 10
Stratix V
Tegra K1
Tesla K40

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