

A deep learning FPGA platform optimized for implementation on Microsemi FPGAs

Overview

Core Deep Learning from ASIC Design Services is a scalable and flexible Convolutional Neural Network (CNN) solution for Microsemi FPGAs. Core Deep Learning accelerates convolutional and fully connected neural networks. The configurable nature, small real-estate, and low-power properties of FPGAs allows for computationally expensive CNNs to be moved to the node.

Core Deep Learning is the product of a scalable framework that offers the opportunity to stipulate the desired performance, platform specifications, and resource constraints for an application and platform-specific optimized solution.

Comprehensive Layer Support

- Convolution
- Pooling
- Activation
- Fully connected
- Batch normalisation

8-Bit Dynamic Fixed-Point Representation

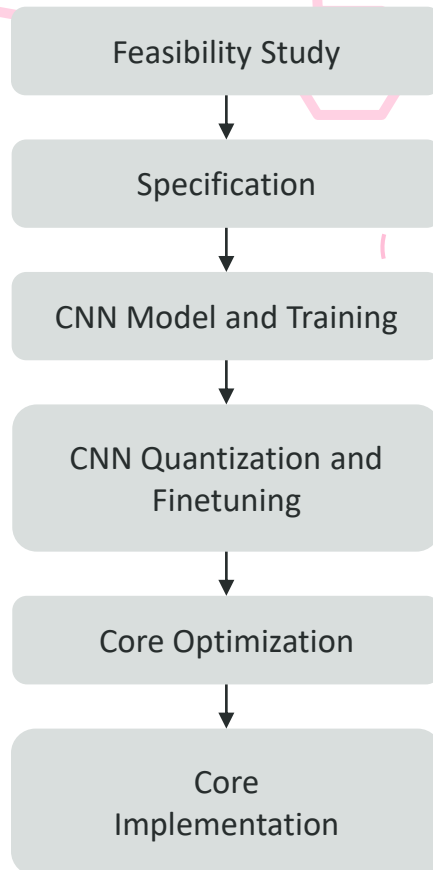
- Low power
- Low bandwidth
- Smart quantization
- Negligible accuracy loss
- Efficient hardware usage

Easy Integration

Core Deep Learning can fit into any FPGA design by scaling to unique customer requirements. Using search and simulation algorithms, optimal solutions are provided on a per-implementation basis. Each solution is configured specific to the network and user-specific platform requirements.

The simple interface allows for fast, efficient design integration.

Services and Solutions



Versatile Network Support



Simple Interface

```

axi_clk      axi_master
axi_rst_n    done
core_clk
core_rst_n   Core
apb_clk      Deep
apb_rst_n    Learning
apb_slave
  
```

Device Compatibility



Key Features

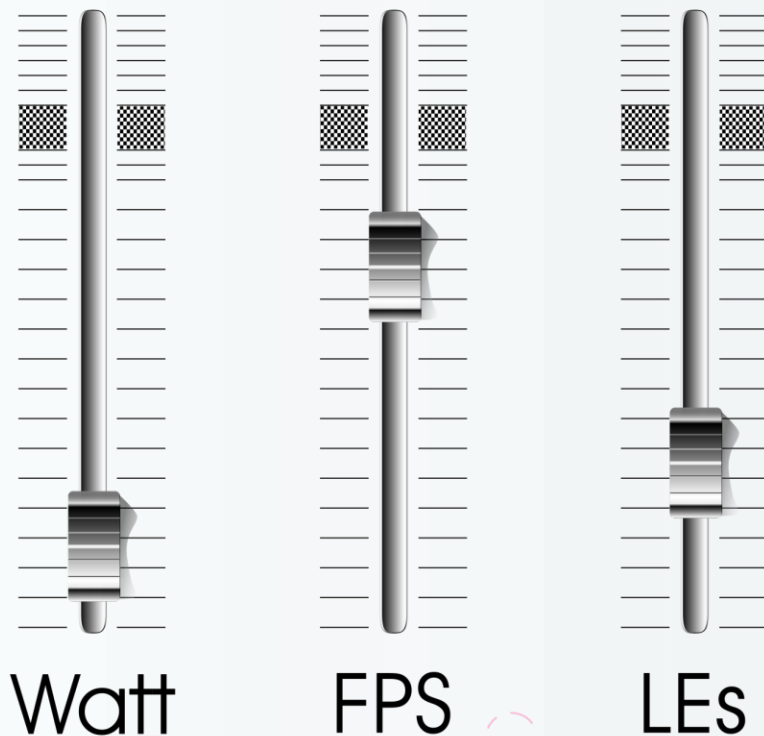
- FPGA CNN solution
- Hardware only
- Scalable
- Network specific
- Platform optimized
- Low power



Core Deep Learning



**Ultimate User
Flexibility**



**Optimal FPGA
Implementation**