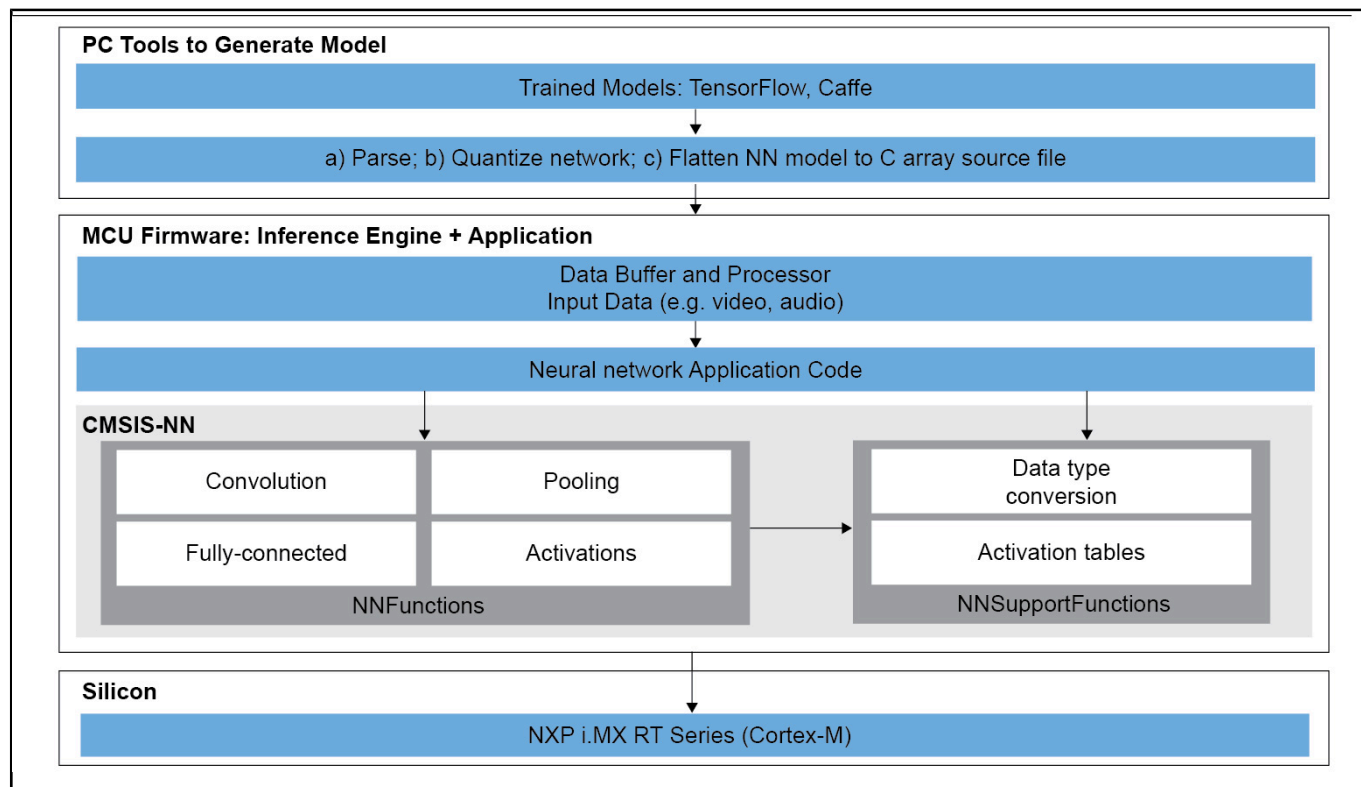# eIQ for Arm CMSIS-NN

eIQArmCMSISNN

Last Updated: Jul 16, 2024

Arm CMSIS-NN是一组高效的神经网络内核，用于最大化Arm Cortex-M处理器内核的性能，同时最小化内核中神经网络的内存占用。为了便于部署，恩智浦eIQ将CMSIS- NN以及所有其他Arm CMSIS组件直接集成到MCUXpresso中。使用CMSIS-NN比使用TensorFlow Lite需要的人工干预更多，但是性能更快，内存占用更小，而代价则是受限的神经网络算子。因此无法支持某些模型。Arm还提供转换脚本来解析网络拓扑并自动确定要使用的适当函数。

eIQ for Arm® CMSIS-NN Block Diagram

PC Tools to Generate Model

Trained Models: TensorFlow, Caffe

a) Parse; b) Quantize network; c) Flatten NN model to C array source file

MCU Firmware: Inference Engine + Application

Data Buffer and Processor
Input Data (e.g. video, audio)

Neural network Application Code

CMSIS-NN

Convolution	Pooling
Fully-connected	Activations

NNFunctions

Data type conversion
Activation tables

NNSupportFunctions

Silicon

NXP i.MX RT Series (Cortex-M)

View additional information for eIQ for Arm CMSIS-NN.

Note: The information on this document is subject to change without notice.