# ONNX to Barracuda:

# Supported Operation on Barracuda

Supported Operations

[*Constant*](https://docs.unity3d.com/Packages/com.unity.barracuda@1.0/manual/SupportedOperators.html#Constant)*,* Reshape, Shape, [*Unsqueeze*](https://docs.unity3d.com/Packages/com.unity.barracuda@1.0/manual/SupportedOperators.html#Unsqueeze), [*Squeeze*](https://docs.unity3d.com/Packages/com.unity.barracuda@1.0/manual/SupportedOperators.html#Squeeze)*,* Flatten, Concat, Slice, Gather, [*OneHot*](https://docs.unity3d.com/Packages/com.unity.barracuda@1.0/manual/SupportedOperators.html#OneHot)*,* LSTM, Add, Sum, Sub, Mul, Div, Pow, Min, Max, Mean ,Greater, Equal, Or, And, Not, Xor, Pad*,* [*AveragePool*](https://docs.unity3d.com/Packages/com.unity.barracuda@1.0/manual/SupportedOperators.html#AveragePool)*,* [*MaxPool*](https://docs.unity3d.com/Packages/com.unity.barracuda@1.0/manual/SupportedOperators.html#MaxPool)*,* GlobalAveragePool, GlobalMaxPool, Upsample*,* [*Resize*](https://docs.unity3d.com/Packages/com.unity.barracuda@1.0/manual/SupportedOperators.html#Resize)*,* Transpose*,* [*Gemm*](https://docs.unity3d.com/Packages/com.unity.barracuda@1.0/manual/SupportedOperators.html#Gemm), MatMul, Conv, [*ConvTranspose*](https://docs.unity3d.com/Packages/com.unity.barracuda@1.0/manual/SupportedOperators.html#ConvTranspose)*,* BatchNormalization, ImageScaler, InstanceNormalization, RandomNormal, RandomNormalLike, RandomUniform, RandomUniformLike, Multinomial, ReduceMax, ReduceMean, ReduceMin, ReduceProd, ReduceSum, Identity, Cast, Dropout,

Supported Activations

Relu*,* [*Softmax*](https://docs.unity3d.com/Packages/com.unity.barracuda@1.0/manual/SupportedOperators.html#Softmax)*,* [*LogSoftmax*](https://docs.unity3d.com/Packages/com.unity.barracuda@1.0/manual/SupportedOperators.html#LogSoftmax)*,* Tanh, Sqrt, Sigmoid, Elu, LeakyRelu, Selu, PRelu, Exp, Log, Reciprocal, Abs, Neg, Ceil, Floor, Clip,

NOT SUPPORTED :

Constant : sparse\_value

Unsqueeze : axis <= 1

Squeeze : axis <= 1

OneHot : axis

AveragePool : ceil\_mode, count\_include\_pad

MaxPool : ceil\_mode, dilations, storage\_order

Softmax : axis

LogSoftmax : axis

Resize: opset-11, coordinate\_transformation\_mode, nearest\_mode

cubic\_coeff\_a : not supported, default to -0.75

exclude\_outside : not supported, default to 0

extrapolation\_value : not supported, default to 0

Gemm

alpha : not supported, default to 1

beta : not supported, default to 1

transA : not supported, default to 0

ConvTranspose

dilations : not supported, default to {1,1}

group : not supported, default to 1

output\_shape : not supported, default to [0]

From <https://github.com/qfgaohao/pytorch-ssd>

mb1-ssd.onnx :

Asset import failed, "Assets/Models/mb1-ssd.onnx" > OnnxImportException: Unexpected error while parsing layer 451 of type Mul.

Cannot reshape array of size 6000 into shape (1, 1, 1, 1, 1, 1, 3000, 1)

MobileNetV2 SSD-Lite

uses Relu6 which is not supported by ONNX

# ONNX Zoo Models

##### Models that are OK for Object detection

Efficientnet-lite4

MobileNetV2

squeezenet1.0-3

Shufflenet

Inception

GoogleNet

#### ssd-10.onnx

Asset import failed, "Assets/Models/ssd-10.onnx" > OnnxImportException: Unexpected error while parsing layer Mul\_509 of type Mul.

Cannot reshape array of size 30260 into shape (1, 1, 1, 1, 1, 1, 15130, 1)

#### ssd\_mobilenet\_v1\_10.onnx

Asset import failed, "Assets/Models/ssd\_mobilenet\_v1\_10.onnx" > OnnxImportException: Unknown type Loop encountered while parsing layer unused\_loop\_output\_\_\_67.

#### version-RFB-320

Asset import failed, "Assets/Models/version-RFB-320.onnx" > OnnxImportException: Unexpected error while parsing layer 466 of type Mul.

Cannot reshape array of size 8840 into shape (1, 1, 1, 1, 1, 1, 4420, 1)

pytorch SSD to ONNX : <https://colab.research.google.com/drive/1gHlkAucVTmCfCoAH4AYopn5L9K4LEJvz#scrollTo=uPmB-x6jh93Y>

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