

DRP-AI Translator V1.70

Release Note

Introduction

This release note describes the improvements of the DRP-AI Translator.

Key Features and Enhancements

- New supported dilated convolution used in semantic segmentation
- New supported preprocessing type : conv_x2gray (Converting color to gray image)
- New supported postprocessing type : argminmax (Argmin & Argmax)

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1. Improvements

1.1 Pre-processing Update

- conv_x2gray

“conv_x2gray” is now supported as a preprocessing type. Convert from YUV/RGB/BGR to Grayscale.

```
op: conv_x2gray
param:
  DIN_FORMAT: 0 # "YUY2"
```

- crop

“crop” operation for preprocessing is now supported simple definition format.

```
op: crop
param:
  CROP_POS_X : 60
  CROP_POS_Y : 40
  shape_out : [200,200]
  DATA_TYPE : 0 # 0 : 1Byte, 1 : 2Byte
  DATA_FORMAT : 0 # 0: HWC
```

1.2 Post-processing Update

- argminmax

“argminmax” is now supported as a postprocessing type. Return the indices of the minimum/maximum values along an axis.

```
op: argminmax
param:
  DIN_FORMAT: 0 #HWC
  DOUT_TYPE: 0 #uint8
  AXIS: 1 # width
  ARG_MODE: 1 #argmin
```

1.3 New Supported Functions

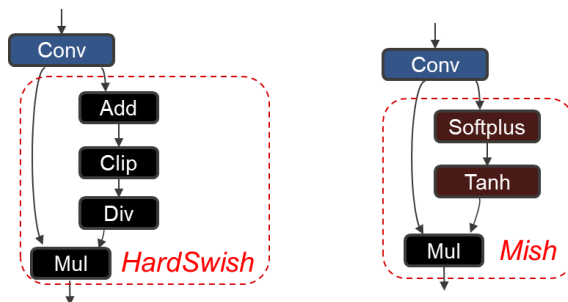
The following functions are now supported.

- HardSwish

HardSwish function is represented in ONNX format by the following graph structure.

- Mish

Mish function is represented in ONNX format by the following graph structure.



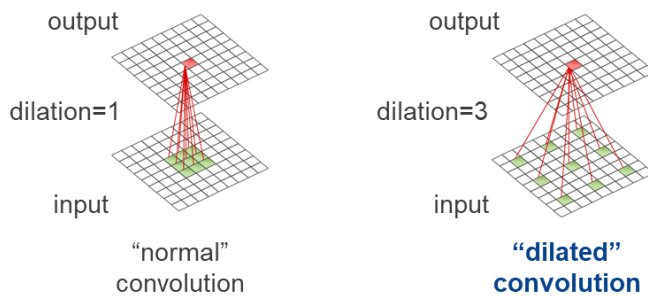
1.4 Operator Attribute Update

New kernel shapes are now supported for the operators below. The improvements from previous version are highlighted in red. Please refer to Section 4 of User's Manual for more details.

- Maxpooling **3x3**, stride 1
- Maxpooling **5x5**, stride 1
- Maxpooling **9x9**, stride 1
- Maxpooling **13x13**, stride 1
- Depthwise Convolution **5x5**, **stride 1/stride 2**

Dilated convolution is now supported. The operator is used in Semantic Segmentation, etc.

- Convolution **3x3**, stride **n**, pad **n**, dilation **n**, group 1



1.5 Relax Restriction

The following Pre & Postprocessing libraries are improved the data size restrictions.

- normalize ... Removed the restriction : Input channel ≤ 16384

The following operator is improved the data size restrictions.

- resize (operator in onnx model) ... Update the restriction : scales : [1,1,2,2] -> [1,1,**y**,**x**]
- softmax ... Update the restriction : $4 \leq \text{ch} \leq 16384$ -> **1** $\leq \text{ch} \leq 16384$

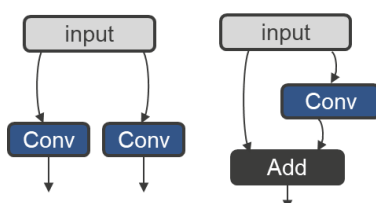
1.6 DRP Library Update

The libraries to be executed by the DRP has been updated. The supported attribute or inference time has been improved.

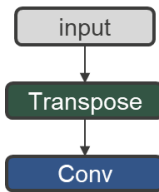
2. Fixed Issues

2.1 Bug Fix

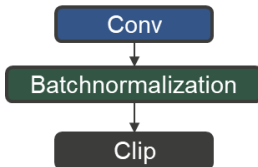
- Fixed the issue where DRP-AI object file was not generated correctly when certain combinations of heigh/width/input channel/output channel are used.
- Fixed the issue related to Batch normalization when certain combinations of parameters are used.
- Fixed the issue related following graph structure.
 - Graph structure where input node is directly connected to two or more operators.



- Graph structure where input node is directly connected “Transpose” operator.



- Graph structure where Batchnormalization is between Conv and Clip.



- Fixed the issue related to other graph structure, combinations of parameters.

3. Known Issues

3.1 Unsupported Graph Structures

DRP-AI Translator now does not support ONNX with the graph structure described below.

- Graph structure where GlobalAveragePool is connected to other than “Flatten” operator.

