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 Layer (type)              Output Shape         Param #     Connected to
=================================================================================
=================
 input_1 (InputLayer)      [(None, 224, 224, 3   0          []
                           )]

 conv2d (Conv2D)           (None, 224, 224, 64   1792       ['input_1[0][0]']
                           )

 batch_normalization (BatchNorm  (None, 224, 224, 64   256    ['conv2d[0][0]']
 alization)                )

 activation (Activation)   (None, 224, 224, 64   0          ['batch_normalization[0][0]']
                           )

 conv2d_1 (Conv2D)         (None, 224, 224, 12   73856      ['activation[0][0]']
                           8)

 batch_normalization_1 (BatchNo  (None, 224, 224, 12   512    ['conv2d_1[0][0]']
 rmalization)              8)

 activation_1 (Activation)  (None, 224, 224, 12   0         ['batch_normalization_1[0][0]']
                           8)

 max_pooling2d (MaxPooling2D)  (None, 112, 112, 12   0       ['activation_1[0][0]']
                           8)

 conv2d_2 (Conv2D)         (None, 112, 112, 12   147584     ['max_pooling2d[0][0]']
                           8)

 batch_normalization_2 (BatchNo  (None, 112, 112, 12   512    ['conv2d_2[0][0]']
 rmalization)              8)

 activation_2 (Activation)  (None, 112, 112, 12   0         ['batch_normalization_2[0][0]']
                           8)

 conv2d_3 (Conv2D)         (None, 112, 112, 25   295168     ['activation_2[0][0]']
                           6)

 batch_normalization_3 (BatchNo  (None, 112, 112, 25   1024    ['conv2d_3[0][0]']
 rmalization)              6)

 activation_3 (Activation)  (None, 112, 112, 25   0         ['batch_normalization_3[0][0]']
                           6)

 max_pooling2d_1 (MaxPooling2D)  (None, 56, 56, 256)  0       ['activation_3[0][0]']

 conv2d_4 (Conv2D)         (None, 56, 56, 64)    16448      ['max_pooling2d_1[0][0]']

 batch_normalization_4 (BatchNo  (None, 56, 56, 64)   256    ['conv2d_4[0][0]']
 rmalization)

 activation_4 (Activation)  (None, 56, 56, 64)    0         ['batch_normalization_4[0][0]']
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conv2d_5 (Conv2D)	(None, 56, 56, 64)	36928	['activation_4[0][0]']
batch_normalization_5 (BatchNo rmalization)	(None, 56, 56, 64)	256	['conv2d_5[0][0]']
activation_5 (Activation)	(None, 56, 56, 64)	0	['batch_normalization_5[0][0]']
conv2d_6 (Conv2D)	(None, 56, 56, 256)	16640	['activation_5[0][0]']
conv2d_7 (Conv2D)	(None, 56, 56, 256)	65792	['max_pooling2d_1[0][0]']
batch_normalization_6 (BatchNo rmalization)	(None, 56, 56, 256)	1024	['conv2d_6[0][0]']
batch_normalization_7 (BatchNo rmalization)	(None, 56, 56, 256)	1024	['conv2d_7[0][0]']
add (Add)	(None, 56, 56, 256)	0	['batch_normalization_6[0][0]', 'batch_normalization_7[0][0]']
activation_6 (Activation)	(None, 56, 56, 256)	0	['add[0][0]']
conv2d_8 (Conv2D)	(None, 56, 56, 64)	16448	['activation_6[0][0]']
batch_normalization_8 (BatchNo rmalization)	(None, 56, 56, 64)	256	['conv2d_8[0][0]']
activation_7 (Activation)	(None, 56, 56, 64)	0	['batch_normalization_8[0][0]']
conv2d_9 (Conv2D)	(None, 56, 56, 64)	36928	['activation_7[0][0]']
batch_normalization_9 (BatchNo rmalization)	(None, 56, 56, 64)	256	['conv2d_9[0][0]']
activation_8 (Activation)	(None, 56, 56, 64)	0	['batch_normalization_9[0][0]']
conv2d_10 (Conv2D)	(None, 56, 56, 256)	16640	['activation_8[0][0]']
conv2d_11 (Conv2D)	(None, 56, 56, 256)	65792	['activation_6[0][0]']
batch_normalization_10 (BatchN ormalization)	(None, 56, 56, 256)	1024	['conv2d_10[0][0]']
batch_normalization_11 (BatchN ormalization)	(None, 56, 56, 256)	1024	['conv2d_11[0][0]']
add_1 (Add)	(None, 56, 56, 256)	0	['batch_normalization_10[0][0]', 'batch_normalization_11[0][0]']
activation_9 (Activation)	(None, 56, 56, 256)	0	['add_1[0][0]']
conv2d_12 (Conv2D)	(None, 56, 56, 64)	16448	['activation_9[0][0]']
batch_normalization_12 (BatchN	(None, 56, 56, 64)	256	['conv2d_12[0][0]']

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activation_10 (Activation)   (None, 56, 56, 64)   0   ['batch_normalization_12[0][0]']

conv2d_13 (Conv2D)   (None, 56, 56, 64)   36928   ['activation_10[0][0]']

batch_normalization_13 (BatchN (None, 56, 56, 64) 256   ['conv2d_13[0][0]']
ormalization)

activation_11 (Activation)   (None, 56, 56, 64)   0   ['batch_normalization_13[0][0]']

conv2d_14 (Conv2D)   (None, 56, 56, 256) 16640   ['activation_11[0][0]']

conv2d_15 (Conv2D)   (None, 56, 56, 256) 65792   ['activation_9[0][0]']

batch_normalization_14 (BatchN (None, 56, 56, 256) 1024   ['conv2d_14[0][0]']
ormalization)

batch_normalization_15 (BatchN (None, 56, 56, 256) 1024   ['conv2d_15[0][0]']
ormalization)

add_2 (Add)   (None, 56, 56, 256) 0   ['batch_normalization_14[0][0]',
                                                              'batch_normalization_15[0][0]']

conv2d_16 (Conv2D)   (None, 56, 56, 256) 590080   ['max_pooling2d_1[0][0]']

conv2d_17 (Conv2D)   (None, 56, 56, 256) 590080   ['max_pooling2d_1[0][0]']

conv2d_18 (Conv2D)   (None, 56, 56, 256) 590080   ['max_pooling2d_1[0][0]']

activation_12 (Activation)   (None, 56, 56, 256) 0   ['add_2[0][0]']

concatenate (Concatenate)   (None, 56, 56, 1280 0   ['conv2d_16[0][0]',
)   'conv2d_17[0][0]',
                                                               'conv2d_18[0][0]',
                                                               'activation_12[0][0]',
                                                               'max_pooling2d_1[0][0]']

conv2d_19 (Conv2D)   (None, 56, 56, 256) 327936   ['concatenate[0][0]']

conv2d_21 (Conv2D)   (None, 56, 56, 256) 590080   ['conv2d_19[0][0]']

batch_normalization_16 (BatchN (None, 56, 56, 256) 1024   ['conv2d_21[0][0]']
ormalization)

activation_13 (Activation)   (None, 56, 56, 256) 0   ['batch_normalization_16[0][0]']

conv2d_22 (Conv2D)   (None, 56, 56, 512) 1180160   ['activation_13[0][0]']

batch_normalization_17 (BatchN (None, 56, 56, 512) 2048   ['conv2d_22[0][0]']
ormalization)

activation_14 (Activation)   (None, 56, 56, 512) 0   ['batch_normalization_17[0][0]']

max_pooling2d_3 (MaxPooling2D) (None, 28, 28, 512) 0   ['activation_14[0][0]']

Layer	Output Shape	Param #	Connected to
conv2d_23 (Conv2D)	(None, 28, 28, 256)	131328	['max_pooling2d_3[0][0]']
batch_normalization_18 (BatchNormalization)	(None, 28, 28, 256)	1024	['conv2d_23[0][0]']
activation_15 (Activation)	(None, 28, 28, 256)	0	['batch_normalization_18[0][0]']
conv2d_30 (Conv2D)	(None, 28, 28, 256)	65792	['activation_15[0][0]']
batch_normalization_19 (BatchNormalization)	(None, 28, 28, 256)	1024	['conv2d_30[0][0]']
activation_16 (Activation)	(None, 28, 28, 256)	0	['batch_normalization_19[0][0]']
conv2d_31 (Conv2D)	(None, 28, 28, 64)	147520	['activation_16[0][0]']
concatenate_1 (Concatenate)	(None, 28, 28, 320)	0	['conv2d_23[0][0]', 'conv2d_31[0][0]']
batch_normalization_20 (BatchNormalization)	(None, 28, 28, 320)	1280	['concatenate_1[0][0]']
activation_17 (Activation)	(None, 28, 28, 320)	0	['batch_normalization_20[0][0]']
conv2d_32 (Conv2D)	(None, 28, 28, 256)	82176	['activation_17[0][0]']
batch_normalization_21 (BatchNormalization)	(None, 28, 28, 256)	1024	['conv2d_32[0][0]']
activation_18 (Activation)	(None, 28, 28, 256)	0	['batch_normalization_21[0][0]']
conv2d_33 (Conv2D)	(None, 28, 28, 64)	147520	['activation_18[0][0]']
concatenate_2 (Concatenate)	(None, 28, 28, 384)	0	['concatenate_1[0][0]', 'conv2d_33[0][0]']
batch_normalization_22 (BatchNormalization)	(None, 28, 28, 384)	1536	['concatenate_2[0][0]']
activation_19 (Activation)	(None, 28, 28, 384)	0	['batch_normalization_22[0][0]']
conv2d_34 (Conv2D)	(None, 28, 28, 256)	98560	['activation_19[0][0]']
batch_normalization_23 (BatchNormalization)	(None, 28, 28, 256)	1024	['conv2d_34[0][0]']
activation_20 (Activation)	(None, 28, 28, 256)	0	['batch_normalization_23[0][0]']
conv2d_35 (Conv2D)	(None, 28, 28, 64)	147520	['activation_20[0][0]']
concatenate_3 (Concatenate)	(None, 28, 28, 448)	0	['concatenate_2[0][0]', 'conv2d_35[0][0]']
batch_normalization_24 (BatchNormalization)	(None, 28, 28, 448)	1792	['concatenate_3[0][0]']

ormalization)

activation_21 (Activation)   (None, 28, 28, 448) 0   ['batch_normalization_24[0][0]']

conv2d_36 (Conv2D)   (None, 28, 28, 256) 114944   ['activation_21[0][0]']

batch_normalization_25 (BatchN (None, 28, 28, 256) 1024   ['conv2d_36[0][0]']
ormalization)

activation_22 (Activation)   (None, 28, 28, 256) 0   ['batch_normalization_25[0][0]']

conv2d_37 (Conv2D)   (None, 28, 28, 64)   147520   ['activation_22[0][0]']

concatenate_4 (Concatenate)   (None, 28, 28, 512) 0   ['concatenate_3[0][0]',
                                                    'conv2d_37[0][0]']

batch_normalization_26 (BatchN (None, 28, 28, 512) 2048   ['concatenate_4[0][0]']
ormalization)

activation_23 (Activation)   (None, 28, 28, 512) 0   ['batch_normalization_26[0][0]']

conv2d_38 (Conv2D)   (None, 28, 28, 256) 131328   ['activation_23[0][0]']

batch_normalization_27 (BatchN (None, 28, 28, 256) 1024   ['conv2d_38[0][0]']
ormalization)

activation_24 (Activation)   (None, 28, 28, 256) 0   ['batch_normalization_27[0][0]']

conv2d_39 (Conv2D)   (None, 28, 28, 64)   147520   ['activation_24[0][0]']

concatenate_5 (Concatenate)   (None, 28, 28, 576) 0   ['concatenate_4[0][0]',
                                                    'conv2d_39[0][0]']

batch_normalization_28 (BatchN (None, 28, 28, 576) 2304   ['concatenate_5[0][0]']
ormalization)

activation_25 (Activation)   (None, 28, 28, 576) 0   ['batch_normalization_28[0][0]']

conv2d_40 (Conv2D)   (None, 28, 28, 256) 147712   ['activation_25[0][0]']

batch_normalization_29 (BatchN (None, 28, 28, 256) 1024   ['conv2d_40[0][0]']
ormalization)

activation_26 (Activation)   (None, 28, 28, 256) 0   ['batch_normalization_29[0][0]']

conv2d_41 (Conv2D)   (None, 28, 28, 64)   147520   ['activation_26[0][0]']

concatenate_6 (Concatenate)   (None, 28, 28, 640) 0   ['concatenate_5[0][0]',
                                                    'conv2d_41[0][0]']

conv2d_25 (Conv2D)   (None, 28, 28, 128) 32896   ['conv2d_23[0][0]']

conv2d_27 (Conv2D)   (None, 28, 28, 32)   8224   ['conv2d_23[0][0]']

max_pooling2d_4 (MaxPooling2D) (None, 28, 28, 256) 0   ['conv2d_23[0][0]']

batch_normalization_30 (BatchNormalization)	(None, 28, 28, 640)	2560	['concatenate_6[0][0]']
max_pooling2d_2 (MaxPooling2D)	(None, 28, 28, 1280)	0	['concatenate[0][0]']
conv2d_24 (Conv2D)	(None, 28, 28, 128)	32896	['conv2d_23[0][0]']
conv2d_26 (Conv2D)	(None, 28, 28, 192)	221376	['conv2d_25[0][0]']
conv2d_28 (Conv2D)	(None, 28, 28, 96)	76896	['conv2d_27[0][0]']
conv2d_29 (Conv2D)	(None, 28, 28, 64)	16448	['max_pooling2d_4[0][0]']
activation_27 (Activation)	(None, 28, 28, 640)	0	['batch_normalization_30[0][0]']
concatenate_7 (Concatenate)	(None, 28, 28, 2400)	0	['conv2d_24[0][0]', 'conv2d_26[0][0]', 'conv2d_28[0][0]', 'conv2d_29[0][0]', 'max_pooling2d_2[0][0]', 'activation_27[0][0]']
conv2d_42 (Conv2D)	(None, 28, 28, 512)	1229312	['concatenate_7[0][0]']
conv2d_43 (Conv2D)	(None, 28, 28, 512)	2359808	['conv2d_42[0][0]']
batch_normalization_31 (BatchNormalization)	(None, 28, 28, 512)	2048	['conv2d_43[0][0]']
activation_28 (Activation)	(None, 28, 28, 512)	0	['batch_normalization_31[0][0]']
conv2d_44 (Conv2D)	(None, 28, 28, 768)	3539712	['activation_28[0][0]']
batch_normalization_32 (BatchNormalization)	(None, 28, 28, 768)	3072	['conv2d_44[0][0]']
activation_29 (Activation)	(None, 28, 28, 768)	0	['batch_normalization_32[0][0]']
max_pooling2d_5 (MaxPooling2D)	(None, 14, 14, 768)	0	['activation_29[0][0]']
max_pooling2d_6 (MaxPooling2D)	(None, 7, 7, 768)	0	['max_pooling2d_5[0][0]']
conv2d_20 (Conv2D)	(None, 28, 28, 256)	327936	['max_pooling2d_2[0][0]']
dropout (Dropout)	(None, 7, 7, 768)	0	['max_pooling2d_6[0][0]']
global_average_pooling2d (GlobalAveragePooling2D)	(None, 256)	0	['conv2d_20[0][0]']
global_average_pooling2d_1 (GlobalAveragePooling2D)	(None, 768)	0	['dropout[0][0]']
dropout_1 (Dropout)	(None, 256)	0	['global_average_pooling2d[0][0]'

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                               ]

dropout_2 (Dropout)        (None, 768)      0        ['global_average_pooling2d_1[0][0
                                                     ]']

concatenate_8 (Concatenate)  (None, 1024)    0        ['dropout_1[0][0]',
                                                     'dropout_2[0][0]']

dense (Dense)              (None, 38)        38950    ['concatenate_8[0][0]']

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Total params: 14,372,518
Trainable params: 14,354,086
Non-trainable params: 18,432
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