Layer (type) Output Shape Param #

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input\_1 (InputLayer) [(None, 32, 128, 1)] 0

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conv2d (Conv2D) (None, 32, 128, 64) 640

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max\_pooling2d (MaxPooling2D) (None, 16, 64, 64) 0

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conv2d\_1 (Conv2D) (None, 16, 64, 128) 73856

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max\_pooling2d\_1 (MaxPooling2 (None, 8, 32, 128) 0

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conv2d\_2 (Conv2D) (None, 8, 32, 256) 295168

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conv2d\_3 (Conv2D) (None, 8, 32, 256) 590080

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max\_pooling2d\_2 (MaxPooling2 (None, 4, 32, 256) 0

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conv2d\_4 (Conv2D) (None, 4, 32, 512) 1180160

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batch\_normalization (BatchNo (None, 4, 32, 512) 2048

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conv2d\_5 (Conv2D) (None, 4, 32, 512) 2359808

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batch\_normalization\_1 (Batch (None, 4, 32, 512) 2048

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max\_pooling2d\_3 (MaxPooling2 (None, 2, 32, 512) 0

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conv2d\_6 (Conv2D) (None, 1, 31, 512) 1049088

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lambda (Lambda) (None, 31, 512) 0

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bidirectional (Bidirectional (None, 31, 512) 1574912

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bidirectional\_1 (Bidirection (None, 31, 512) 1574912

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dense (Dense) (None, 31, 79) 40527

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Total params: 8,743,247

Trainable params: 8,741,199

Non-trainable params: 2,048

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Model: "model\_1"

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Layer (type) Output Shape Param # Connected to

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input\_1 (InputLayer) [(None, 32, 128, 1)] 0

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conv2d (Conv2D) (None, 32, 128, 64) 640 input\_1[0][0]

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max\_pooling2d (MaxPooling2D) (None, 16, 64, 64) 0 conv2d[0][0]

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conv2d\_1 (Conv2D) (None, 16, 64, 128) 73856 max\_pooling2d[0][0]

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max\_pooling2d\_1 (MaxPooling2D) (None, 8, 32, 128) 0 conv2d\_1[0][0]

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conv2d\_2 (Conv2D) (None, 8, 32, 256) 295168 max\_pooling2d\_1[0][0]

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conv2d\_3 (Conv2D) (None, 8, 32, 256) 590080 conv2d\_2[0][0]

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max\_pooling2d\_2 (MaxPooling2D) (None, 4, 32, 256) 0 conv2d\_3[0][0]

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conv2d\_4 (Conv2D) (None, 4, 32, 512) 1180160 max\_pooling2d\_2[0][0]

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batch\_normalization (BatchNorma (None, 4, 32, 512) 2048 conv2d\_4[0][0]

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conv2d\_5 (Conv2D) (None, 4, 32, 512) 2359808 batch\_normalization[0][0]

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batch\_normalization\_1 (BatchNor (None, 4, 32, 512) 2048 conv2d\_5[0][0]

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max\_pooling2d\_3 (MaxPooling2D) (None, 2, 32, 512) 0 batch\_normalization\_1[0][0]

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conv2d\_6 (Conv2D) (None, 1, 31, 512) 1049088 max\_pooling2d\_3[0][0]

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lambda (Lambda) (None, 31, 512) 0 conv2d\_6[0][0]

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bidirectional (Bidirectional) (None, 31, 512) 1574912 lambda[0][0]

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bidirectional\_1 (Bidirectional) (None, 31, 512) 1574912 bidirectional[0][0]

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dense (Dense) (None, 31, 79) 40527 bidirectional\_1[0][0]

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true\_labels (InputLayer) [(None, 19)] 0

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input\_length (InputLayer) [(None, 1)] 0

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label\_length (InputLayer) [(None, 1)] 0

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ctc (Lambda) (None, 1) 0 dense[0][0]

true\_labels[0][0]

input\_length[0][0]

label\_length[0][0]

==================================================================================================

Total params: 8,743,247

Trainable params: 8,741,199

Non-trainable params: 2,048

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