**Input**

**Conv**

**11x11+2(S)**

**MaxPool**

**3x3+2(S)**

**Full 4096**

**LocalRespNorm**

**Conv**

**5x5+1(S)**

**LocalRespNorm**

**MaxPool**

**3x3+2(S)**

**Conv**

**3x3+1(S)**

**Conv**

**3x3+1(S)**

**Conv**

**3x3+1(S)**

**MaxPool**

**3x3+2(S)**

**Full 4096**

**Full 1000**

**Softmax**

**Output**

**Act: 224x224x3 = 150528**

**Act: 56x56x96 = 301056**

**Weight: 11x11x3x96 = 34848**

**Act: 26x26x256 = 173056**

**Weight: 5x5x96x256 = 614400**

**Act: 13x13x384 = 64896**

**Weight: 3x3x256x384 = 884736**

**Act: 13x13x384 = 64896**

**Weight: 3x3x384x384 = 1327104**

**Act: 13x13x256 = 43264**

**Weight: 3x3x384x256 = 884736**

**Act: 4096**

**Weight: 6x6x256x4096 = 37748736**

**Act: 4096**

**Weight: 4096x4096 = 16777216**

**Act: 1000**

**Weight: 4096x1000 = 4096000**

**Act: 28x28x96 = 75264**

**Act: 28x28x96 = 75264**

**Act: 26x26x256 = 173056**

**Act: 13x13x256 = 43264**

**Act: 6x6x256 = 9216**

**Act: 1000**

**Act: 1000**

**Activation = Error**

**Activation Size =** **150528+301056+75264+75264+173056+173056+43264+64896+64896+43264+9216+4096+4096+1000+1000 = 1183952**

**(Activation+Error)\*MinibatchSize = 2\*1183952\*128 = 303091712 = ( 300\*sizeof(float) )M = 1200M**

**Weight = Weight Grad = Weight Inc**

**Weight Size = 34848+614400+884736+1327104+884736+37748736+16777216+4096000 = 62367776**

**Weight+Weight Grad+Weight Inc = 3\*62367776 = 187103328 = ( 187\*sizeof(float) )M = 748M**

**Input**

**Conv**

**5x5+1(S)**

**MaxPool**

**3x3+2(S)**

**Full 64**

**Conv**

**5x5+1(S)**

**Conv**

**5x5+1(S)**

**AvgPool**

**3x3+2(S)**

**Full 10**

**Softmax**

**Output**

**Rectify**

**AvgPool**

**3x3+2(S)**

**Rectify**

**Rectify**

**Input**

**Conv**

**5x5+1(S) 32**

**MaxPool**

**3x3+2(S)**

**Full 64**

**Conv**

**5x5+1(S) 32**

**Conv**

**5x5+1(S) 64**

**AvgPool**

**3x3+2(S)**

**Full 10**

**Softmax**

**Output**

**Rectify**

**AvgPool**

**3x3+2(S)**

**Rectify**

**Rectify**

**ColinearConv**

**5x5+1(S) 32**

**ColinearConv**

**5x5+1(S) 32**

**ColinearConv**

**5x5+1(S) 64**

**Input**

**Original Img**

**Conv**

**1x1+1(S) 8**

**Tanh**

**Conv**

**3x3+1(S) 32**

**Tanh**

**Conv**

**1x1+1(S) 8**

**Conv**

**1x1+1(S) 8**

**Tanh**

**Conv**

**5x5+1(S) 16**

**Tanh**

**Conv**

**1x1+1(S) 8**

**Tanh**

**Conv**

**7x7+1(S) 8**

**Tanh**

**Concat**

**Conv**

**1x1+1(S) 1**

**Tanh**

**Output**

**Alpha Img**

**Euclidean Mask Loss**

**Trimap Img**

**FP**

**BP**

**Test**

**Input**

**Original Img**

**Conv**

**1x1+1(S) 8**

**Tanh**

**Conv**

**3x3+1(S) 32**

**Tanh**

**Conv**

**1x1+1(S) 8**

**Conv**

**1x1+1(S) 8**

**Tanh**

**Conv**

**5x5+1(S) 16**

**Tanh**

**Conv**

**1x1+1(S) 8**

**Tanh**

**Conv**

**7x7+1(S) 8**

**Tanh**

**Concat**

**Conv**

**1x1+1(S) 1**

**Tanh**

**Output**

**Alpha Img**

**Matting Loss**

**Trimap Img**

**FP**

**BP**

**Test**

**Deep Convolutional Matting Neural Network**

**Conv**

**5x5+1(S) 32**

**Conv**

**5x5+1(S) 8**

**Conv**

**1x1+1(S) 1**

**Input**

**Original Img**

**Tanh**

**Output**

**Alpha Img**

**Euclidean Mask Loss**

**Trimap Img**

**Tanh**

**Tanh**

**Input**

**Original Img**

**Output**

**Alpha Img**

**Euclidean Mask Loss**

**Trimap Img**

**FP**

**BP**

**Test**

1x1 Mini-Column

**8**

3x3 Mini-Column

**32**

5x5 Mini-Column

**16**

7x7 Mini-Column

**8**

1x1 Hyper-Column

**8**

1x1 Hyper-Column

**8**

1x1 Hyper-Column

**8**

1x1 Hyper-Column

**1**