[Intel] Writing test by Wu Hao:

**Purpose:**

Writing the convolution, relu, pooling function in convolutional nerual networks(CNNs) using c/c++. The input data includes four dimensions: width, height, channels, batchsize, as well as kernels: kwidth, kheight, kchannels, kernel number. Computation efficiency should be calculated via GFLOPS.

Fused method and OpenMP optimization is plus.

**Time complexity and GFLOPS:**

Experimental information:

CPU: Intel® Core™ i7-8700 CUP@ 3.20GHz 6core

Input data: 512\*512\*3\*24

Convolutional kernel: 3\*3\*3\*12

Type of data and weights: float

Padding 0 : 1

Stride: 1

Bias: 1.3

pooling number: 2

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| --- | --- | --- |
| Function | Plain | OpenMP |
| Convolution | 4.869s | 0.714s |
| Relu | 0.237s | 0.034s |
| Pooling | 1.159s | 0.166s |
| Conv→Relu→Pooling | 6.265s | 0.914s |
| Fused\_conv\_relu\_pooling | 6.202s | 0.804s |

Hardware computation peak: 307.2Gflops

My code : 3\*3\*3\*2\*512\*512\*12\*24flo/0.714s = 4.08Gflops

The screenshots of the output results of each layer or function can be viewed on

<https://github.com/WuhaoCHN/IntelTest912update/tree/main/Test_results>

time\_test1.png an time\_test2.png is the data in the above table.