

Single Node Experiments

Graph500 Scale=20 u12-2.fascia

run.sh

app=sc-skl-icc.bin ## run SubGraph2Vec on a skylake node compiled by Intel icc
app=./sc-hsw-icc-no.bin ## run SubGraph2Vec on a skylake node compiled by Intel icc

graph_file=dataset/graph500-scale20-ef16_adj.mmio ## specify the input network

Selected templates (Paper: Fig. 6(b) Templates used in the experiments)

template_file=template/Tree_12_337.fascia ## specify the tree template

litr=1 ## the number of iteration

tpproc=24 ## the number of threads per process

read_binary=0 ## equals 1 if graph_file is in binary format

writeBinary=0 ## set this value to 1 and the input text graph_file is output in a binary file

prune=1 ## trigger the complexity reduction (default)

useSPMM=1 ## 0 for SpMV kernel and 1 for SpMM kernel (by default)

useCSC=1 ## choose the adjacency matrix format, 1 for CSC-Split and 0 for CSR

\$app \${graph_file} \${template_file} \${litr} \${tpproc} \${read_binary} \${writeBinary} \${prune}
\${useSPMM}

Result:

```
Time for count per iter: 9.967350 seconds
spmv ratio 52.053629%
eMA ratio 37.616378%
Peak Mem Usage is : 6.358746 GB
SpMM time is : 3.813974 second; EMA time is: 3.742904
SpMM Memory bandwidth is : 102.392922 GBytes per second
FMA Memory bandwidth is : 78.907767 GBytes per second
Total Memory bandwidth is : 90.760779 GBytes per second
SpMM Throughput is : 12.046226 Gflops per second
FMA Throughput is : 13.151295 Gflops per second
Total Throughput is : 12.593564 Gflops per second
Final raw count is 2.225512e+38
Prob is 0.000054
Final count is 4.142552e+42
```

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Graph500 Scale=20 u13.fascia

run.sh

app=./sc-hsw-icc-no.bin ## run SubGraph2Vec on a skylake node compiled by Intel icc

graph_file=gnp.graph ## specify the input network

graph_file=dataset/graph500-scale20-ef16_adj.mmio ## specify the input network

template_file=u3-1.fascia ## specify the tree template

Selected templates (Paper: Fig. 6(b) Templates used in the experiments)

template_file=template/Tree_13_783.fascia ## specify the tree template

litr=1 ## the number of iteration

tpproc=24 ## the number of threads per process

read_binary=0 ## equals 1 if graph_file is in binary format

writeBinary=0 ## set this value to 1 and the input text graph_file is output in a binary file

prune=1 ## trigger the complexity reduction (default)

useSPMM=1 ## 0 for SpMV kernel and 1 for SpMM kernel (by default)

useCSC=1 ## choose the adjacency matrix format, 1 for CSC-Split and 0 for CSR

\$app \${graph_file} \${template_file} \${litr} \${tpproc} \${read_binary} \${writeBinary} \${prune}
\${useSPMM}

Result:

```
Time for count per iter: 19.324058 seconds
spmv ratio 51.101363%
eMA ratio 40.064191%
Peak Mem Usage is : 11.494518 GB
SpMM time is : 7.513146 second; EMA time is: 7.728200
SpMM Memory bandwidth is : 104.387079 GBytes per second
FMA Memory bandwidth is : 90.062639 GBytes per second
Total Memory bandwidth is : 97.123801 GBytes per second
SpMM Throughput is : 12.280833 Gflops per second
FMA Throughput is : 15.010440 Gflops per second
Total Throughput is : 13.664894 Gflops per second
Final raw count is 2.304284e+40
Prob is 0.000006
Final count is 3.612272e+45
```

Time for count per iter: 19.324058 seconds

spmv ratio 51.101363%

eMA ratio 40.064191%

Peak Mem Usage is : 11.494518 GB

SpMM time is : 7.513146 second; EMA time is: 7.728200

SpMM Memory bandwidth is : 104.387079 GBytes per second

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