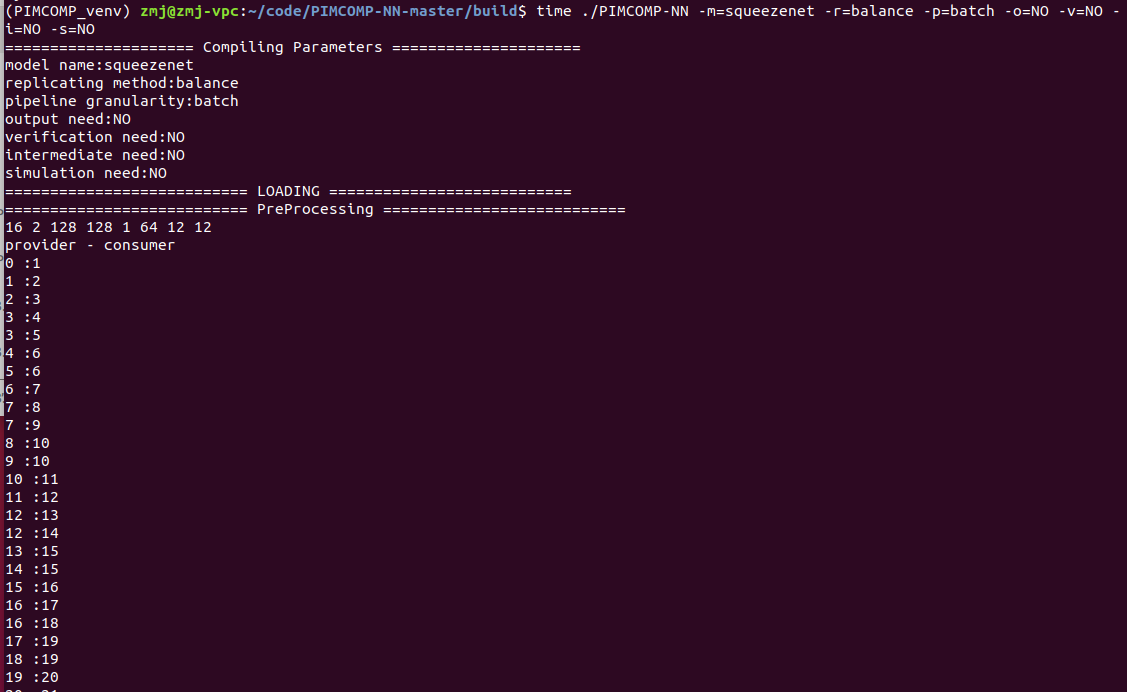
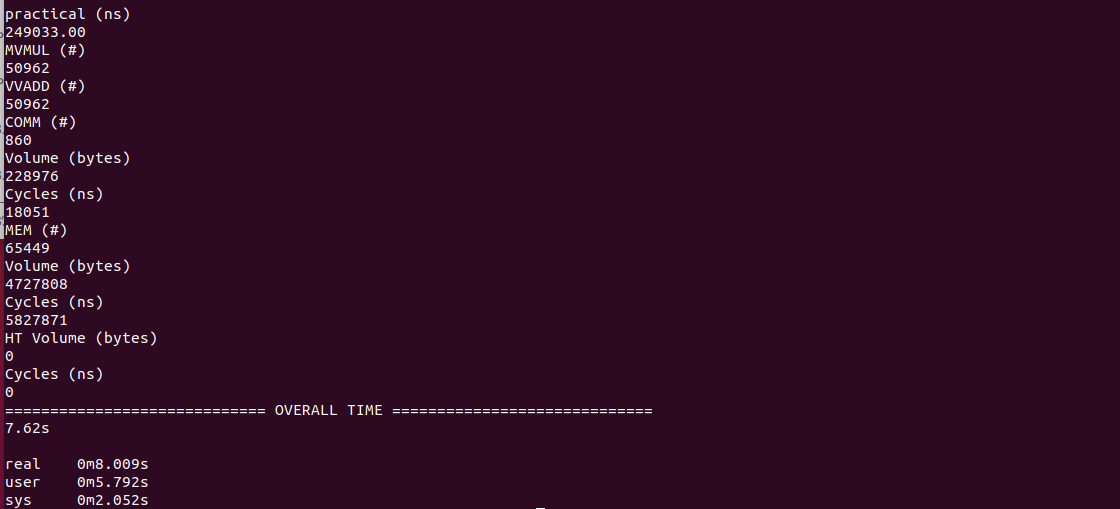
# 前端

（项目里已有该模型的json文件，所以不需运行前端来生成json文件）

# 后端

## LL





(PIMCOMP\_venv) zmj@zmj-vpc:~/code/PIMCOMP-NN-master/build$ time ./PIMCOMP-NN -m=squeezenet -r=balance -p=batch -o=NO -v=NO -i=NO -s=NO

===================== Compiling Parameters =====================

model name:squeezenet

replicating method:balance

pipeline granularity:batch

output need:NO

verification need:NO

intermediate need:NO

simulation need:NO

=========================== LOADING ===========================

=========================== PreProcessing ===========================

16 2 128 128 1 64 12 12

provider - consumer

0 :1

1 :2

2 :3

3 :4

3 :5

4 :6

5 :6

6 :7

7 :8

7 :9

8 :10

9 :10

10 :11

11 :12

12 :13

12 :14

13 :15

14 :15

15 :16

16 :17

16 :18

17 :19

18 :19

19 :20

20 :21

21 :22

21 :23

22 :24

23 :24

24 :25

25 :26

25 :27

26 :28

27 :28

28 :29

29 :30

29 :31

30 :32

31 :32

32 :33

33 :34

33 :35

34 :36

35 :36

36 :37

37 :38

38 :39

39 :40

40 :-1

consumer - provider

1 :0

2 :1

3 :2

4 :3

5 :3

6 :4

6 :5

7 :6

8 :7

9 :7

10 :8

10 :9

11 :10

12 :11

13 :12

14 :12

15 :13

15 :14

16 :15

17 :16

18 :16

19 :17

19 :18

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21 :20

22 :21

23 :21

24 :22

24 :23

25 :24

26 :25

27 :25

28 :26

28 :27

29 :28

30 :29

31 :29

32 :30

32 :31

33 :32

34 :33

35 :33

36 :34

36 :35

37 :36

38 :37

39 :38

40 :39

=========================== MODEL INFO ===========================

#Nodes in total: 41

1

input: 294kB

output: 1540.12kB

Weight Matrix:27 × 64

min crossbar:1

3

input: 378.125kB

output: 94.5312kB

Weight Matrix:64 × 16

min crossbar:1

4

input: 94.5312kB

output: 378.125kB

Weight Matrix:16 × 64

min crossbar:1

5

input: 94.5312kB

output: 378.125kB

Weight Matrix:144 × 64

min crossbar:1

7

input: 756.25kB

output: 94.5312kB

Weight Matrix:128 × 16

min crossbar:1

8

input: 94.5312kB

output: 378.125kB

Weight Matrix:16 × 64

min crossbar:1

9

input: 94.5312kB

output: 378.125kB

Weight Matrix:144 × 64

min crossbar:1

12

input: 182.25kB

output: 45.5625kB

Weight Matrix:128 × 32

min crossbar:1

13

input: 45.5625kB

output: 182.25kB

Weight Matrix:32 × 128

min crossbar:1

14

input: 45.5625kB

output: 182.25kB

Weight Matrix:288 × 128

min crossbar:1

16

input: 364.5kB

output: 45.5625kB

Weight Matrix:256 × 32

min crossbar:1

17

input: 45.5625kB

output: 182.25kB

Weight Matrix:32 × 128

min crossbar:1

18

input: 45.5625kB

output: 182.25kB

Weight Matrix:288 × 128

min crossbar:1

21

input: 84.5kB

output: 15.8438kB

Weight Matrix:256 × 48

min crossbar:1

22

input: 15.8438kB

output: 63.375kB

Weight Matrix:48 × 192

min crossbar:2

23

input: 15.8438kB

output: 63.375kB

Weight Matrix:432 × 192

min crossbar:2

25

input: 126.75kB

output: 15.8438kB

Weight Matrix:384 × 48

min crossbar:1

26

input: 15.8438kB

output: 63.375kB

Weight Matrix:48 × 192

min crossbar:2

27

input: 15.8438kB

output: 63.375kB

Weight Matrix:432 × 192

min crossbar:2

29

input: 126.75kB

output: 21.125kB

Weight Matrix:384 × 64

min crossbar:1

30

input: 21.125kB

output: 84.5kB

Weight Matrix:64 × 256

min crossbar:2

31

input: 21.125kB

output: 84.5kB

Weight Matrix:576 × 256

min crossbar:2

33

input: 169kB

output: 21.125kB

Weight Matrix:512 × 64

min crossbar:1

34

input: 21.125kB

output: 84.5kB

Weight Matrix:64 × 256

min crossbar:2

35

input: 21.125kB

output: 84.5kB

Weight Matrix:576 × 256

min crossbar:2

38

input: 169kB

output: 330.078kB

Weight Matrix:512 × 1000

min crossbar:8

FC Weight: 0MB

Sum Weight: 2.349MB

FC Ratio: 0%

Output Sum:4.9388MB

Minimum Crossbar Num in One Core:8

=========================== REPLICATING ===========================

node:1 replication\_num:953

node:3 replication\_num:233

node:4 replication\_num:241

node:5 replication\_num:233

node:7 replication\_num:233

node:8 replication\_num:233

node:9 replication\_num:233

node:12 replication\_num:57

node:13 replication\_num:57

node:14 replication\_num:59

node:16 replication\_num:57

node:17 replication\_num:61

node:18 replication\_num:61

node:21 replication\_num:15

node:22 replication\_num:15

node:23 replication\_num:13

node:25 replication\_num:13

node:26 replication\_num:15

node:27 replication\_num:15

node:29 replication\_num:15

node:30 replication\_num:13

node:31 replication\_num:13

node:33 replication\_num:13

node:34 replication\_num:13

node:35 replication\_num:13

node:38 replication\_num:15

=========================== PARTITIONING ===========================

#RRAMs needed: 4716

#ArrayGroups needed: 3998

RRAMs Usage: 51.1719%

Replication Check Pass!

============================= MAPPING =============================

0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 4 0 0 0 0 0 0 16 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64

split AG num: 0

Mapping Check Pass!

========================= BATCH PIPELINE SCHEDULING =========================

------------- INSTRUCTION GENERATION -------------

effective\_instruction\_group\_num:13

------------- MEMORY ALLOCATION -------------

------------- DATA RELOAD -------------

Reload Input Stage

Store Output Stage

=========================== OPTIMIZATION ===========================

============================= PLACING =============================

============================= EVALUATING =============================

instruction\_group\_num:13

0 MVMUL:828 MEM:1096 LATENCY: 245176.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:173400.00 MVMUL:70.72% VEC:0.00% MEM:71202.00 MEM:29.04% ratio:99.77% COMM Volume:0.00kB MEM Volume:137.00kB

1 MVMUL:828 MEM:1095 LATENCY: 245296.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:173400.00 MVMUL:70.69% VEC:0.00% MEM:71314.00 MEM:29.07% ratio:99.76% COMM Volume:0.00kB MEM Volume:136.88kB

2 MVMUL:828 MEM:1098 LATENCY: 245416.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:173400.00 MVMUL:70.66% VEC:0.00% MEM:71436.00 MEM:29.11% ratio:99.76% COMM Volume:0.00kB MEM Volume:137.25kB

3 MVMUL:828 MEM:1096 LATENCY: 245536.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:173400.00 MVMUL:70.62% VEC:0.00% MEM:71560.00 MEM:29.14% ratio:99.77% COMM Volume:0.00kB MEM Volume:137.00kB

4 MVMUL:828 MEM:1098 LATENCY: 245656.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:173400.00 MVMUL:70.59% VEC:0.00% MEM:71680.00 MEM:29.18% ratio:99.77% COMM Volume:0.00kB MEM Volume:137.25kB

5 MVMUL:828 MEM:1095 LATENCY: 245776.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:173400.00 MVMUL:70.55% VEC:0.00% MEM:71804.00 MEM:29.22% ratio:99.77% COMM Volume:0.00kB MEM Volume:136.88kB

6 MVMUL:828 MEM:1098 LATENCY: 245896.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:173400.00 MVMUL:70.52% VEC:0.00% MEM:71922.00 MEM:29.25% ratio:99.77% COMM Volume:0.00kB MEM Volume:137.25kB

7 MVMUL:828 MEM:1097 LATENCY: 246016.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:173400.00 MVMUL:70.48% VEC:0.00% MEM:72030.00 MEM:29.28% ratio:99.76% COMM Volume:0.00kB MEM Volume:137.12kB

8 MVMUL:828 MEM:1098 LATENCY: 246136.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:173400.00 MVMUL:70.45% VEC:0.00% MEM:72156.00 MEM:29.32% ratio:99.76% COMM Volume:0.00kB MEM Volume:137.25kB

9 MVMUL:828 MEM:1096 LATENCY: 246256.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:173400.00 MVMUL:70.41% VEC:0.00% MEM:72278.00 MEM:29.35% ratio:99.77% COMM Volume:0.00kB MEM Volume:137.00kB

10 MVMUL:828 MEM:1098 LATENCY: 246376.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:173400.00 MVMUL:70.38% VEC:0.00% MEM:72400.00 MEM:29.39% ratio:99.77% COMM Volume:0.00kB MEM Volume:137.25kB

11 MVMUL:828 MEM:1097 LATENCY: 246496.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:173400.00 MVMUL:70.35% VEC:0.00% MEM:72526.00 MEM:29.42% ratio:99.77% COMM Volume:0.00kB MEM Volume:137.12kB

12 MVMUL:828 MEM:1095 LATENCY: 246616.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:173400.00 MVMUL:70.31% VEC:0.00% MEM:72642.00 MEM:29.46% ratio:99.77% COMM Volume:0.00kB MEM Volume:136.88kB

13 MVMUL:828 MEM:1098 LATENCY: 246736.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:173400.00 MVMUL:70.28% VEC:0.00% MEM:72756.00 MEM:29.49% ratio:99.76% COMM Volume:0.00kB MEM Volume:137.25kB

14 MVMUL:820 MEM:1146 LATENCY: 243613.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:171800.00 MVMUL:70.52% VEC:0.00% MEM:71495.00 MEM:29.35% ratio:99.87% COMM Volume:0.00kB MEM Volume:134.62kB

15 MVMUL:831 MEM:1663 LATENCY: 246799.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:174000.00 MVMUL:70.50% VEC:0.00% MEM:72539.00 MEM:29.39% ratio:99.89% COMM Volume:0.00kB MEM Volume:129.88kB

16 MVMUL:831 MEM:1663 LATENCY: 246862.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:174000.00 MVMUL:70.48% VEC:0.00% MEM:72602.00 MEM:29.41% ratio:99.89% COMM Volume:0.00kB MEM Volume:129.88kB

17 MVMUL:831 MEM:1663 LATENCY: 246925.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:174000.00 MVMUL:70.47% VEC:0.00% MEM:72665.00 MEM:29.43% ratio:99.89% COMM Volume:0.00kB MEM Volume:129.88kB

18 MVMUL:818 MEM:1362 LATENCY: 243915.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:171400.00 MVMUL:70.27% VEC:0.00% MEM:71995.00 MEM:29.52% ratio:99.79% COMM Volume:0.00kB MEM Volume:128.81kB

19 MVMUL:804 MEM:1006 LATENCY: 241286.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:168600.00 MVMUL:69.88% VEC:0.00% MEM:72114.00 MEM:29.89% ratio:99.76% COMM Volume:0.00kB MEM Volume:125.75kB

20 MVMUL:804 MEM:1006 LATENCY: 241358.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:168600.00 MVMUL:69.85% VEC:0.00% MEM:72186.00 MEM:29.91% ratio:99.76% COMM Volume:0.00kB MEM Volume:125.75kB

21 MVMUL:804 MEM:1006 LATENCY: 241430.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:168600.00 MVMUL:69.83% VEC:0.00% MEM:72258.00 MEM:29.93% ratio:99.76% COMM Volume:0.00kB MEM Volume:125.75kB

22 MVMUL:821 MEM:841 LATENCY: 246987.0 COMM\_SYN:1.00% COMM\_TRANS:0.03% MVMUL:172000.00 MVMUL:69.64% VEC:0.11% MEM:71614.00 MEM:29.00% ratio:99.77% COMM Volume:1.62kB MEM Volume:105.12kB

23 MVMUL:832 MEM:781 LATENCY: 247826.0 COMM\_SYN:0.16% COMM\_TRANS:0.05% MVMUL:174200.00 MVMUL:70.29% VEC:0.10% MEM:72260.00 MEM:29.16% ratio:99.77% COMM Volume:3.25kB MEM Volume:97.62kB

24 MVMUL:832 MEM:779 LATENCY: 247762.0 COMM\_SYN:0.23% COMM\_TRANS:0.05% MVMUL:174800.00 MVMUL:70.55% VEC:0.10% MEM:71434.00 MEM:28.83% ratio:99.77% COMM Volume:3.25kB MEM Volume:97.38kB

25 MVMUL:832 MEM:781 LATENCY: 247698.0 COMM\_SYN:0.25% COMM\_TRANS:0.05% MVMUL:174200.00 MVMUL:70.33% VEC:0.10% MEM:71908.00 MEM:29.03% ratio:99.77% COMM Volume:3.25kB MEM Volume:97.62kB

26 MVMUL:832 MEM:781 LATENCY: 247571.0 COMM\_SYN:0.29% COMM\_TRANS:0.05% MVMUL:174200.00 MVMUL:70.36% VEC:0.11% MEM:71696.00 MEM:28.96% ratio:99.77% COMM Volume:3.25kB MEM Volume:97.62kB

27 MVMUL:832 MEM:781 LATENCY: 247507.0 COMM\_SYN:0.05% COMM\_TRANS:0.05% MVMUL:174200.00 MVMUL:70.38% VEC:0.11% MEM:72222.00 MEM:29.18% ratio:99.77% COMM Volume:3.25kB MEM Volume:97.62kB

28 MVMUL:832 MEM:780 LATENCY: 247443.0 COMM\_SYN:0.04% COMM\_TRANS:0.05% MVMUL:174200.00 MVMUL:70.40% VEC:0.11% MEM:72188.00 MEM:29.17% ratio:99.77% COMM Volume:3.25kB MEM Volume:97.50kB

29 MVMUL:824 MEM:1125 LATENCY: 247379.0 COMM\_SYN:0.70% COMM\_TRANS:0.03% MVMUL:173200.00 MVMUL:70.01% VEC:0.00% MEM:72063.00 MEM:29.13% ratio:99.87% COMM Volume:1.62kB MEM Volume:151.41kB

30 MVMUL:831 MEM:1663 LATENCY: 247050.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:174000.00 MVMUL:70.43% VEC:0.00% MEM:72790.00 MEM:29.46% ratio:99.89% COMM Volume:0.00kB MEM Volume:233.75kB

31 MVMUL:831 MEM:1663 LATENCY: 247205.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:174000.00 MVMUL:70.39% VEC:0.00% MEM:72945.00 MEM:29.51% ratio:99.89% COMM Volume:0.00kB MEM Volume:233.75kB

32 MVMUL:831 MEM:1663 LATENCY: 247691.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:174000.00 MVMUL:70.25% VEC:0.00% MEM:73431.00 MEM:29.65% ratio:99.90% COMM Volume:0.00kB MEM Volume:233.75kB

33 MVMUL:831 MEM:1183 LATENCY: 248085.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:174000.00 MVMUL:70.14% VEC:0.00% MEM:73565.00 MEM:29.65% ratio:99.79% COMM Volume:0.00kB MEM Volume:153.44kB

34 MVMUL:831 MEM:1040 LATENCY: 248211.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:174000.00 MVMUL:70.10% VEC:0.00% MEM:73639.00 MEM:29.67% ratio:99.77% COMM Volume:0.00kB MEM Volume:130.00kB

35 MVMUL:831 MEM:1040 LATENCY: 248337.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:174000.00 MVMUL:70.07% VEC:0.00% MEM:73765.00 MEM:29.70% ratio:99.77% COMM Volume:0.00kB MEM Volume:130.00kB

36 MVMUL:830 MEM:1018 LATENCY: 248453.0 COMM\_SYN:0.17% COMM\_TRANS:0.03% MVMUL:173800.00 MVMUL:69.95% VEC:0.10% MEM:73328.00 MEM:29.51% ratio:99.77% COMM Volume:1.62kB MEM Volume:127.16kB

37 MVMUL:832 MEM:778 LATENCY: 249033.0 COMM\_SYN:0.07% COMM\_TRANS:0.05% MVMUL:174800.00 MVMUL:70.19% VEC:0.10% MEM:73104.00 MEM:29.36% ratio:99.77% COMM Volume:3.25kB MEM Volume:97.25kB

38 MVMUL:832 MEM:780 LATENCY: 248969.0 COMM\_SYN:0.08% COMM\_TRANS:0.05% MVMUL:174800.00 MVMUL:70.21% VEC:0.10% MEM:72998.00 MEM:29.32% ratio:99.77% COMM Volume:3.25kB MEM Volume:97.50kB

39 MVMUL:832 MEM:781 LATENCY: 248905.0 COMM\_SYN:0.07% COMM\_TRANS:0.05% MVMUL:174200.00 MVMUL:69.99% VEC:0.10% MEM:73564.00 MEM:29.56% ratio:99.77% COMM Volume:3.25kB MEM Volume:97.62kB

40 MVMUL:832 MEM:781 LATENCY: 248841.0 COMM\_SYN:0.01% COMM\_TRANS:0.05% MVMUL:174200.00 MVMUL:70.00% VEC:0.10% MEM:73642.00 MEM:29.59% ratio:99.77% COMM Volume:3.25kB MEM Volume:97.62kB

41 MVMUL:832 MEM:781 LATENCY: 248777.0 COMM\_SYN:0.14% COMM\_TRANS:0.05% MVMUL:174200.00 MVMUL:70.02% VEC:0.10% MEM:73272.00 MEM:29.45% ratio:99.77% COMM Volume:3.25kB MEM Volume:97.62kB

42 MVMUL:832 MEM:779 LATENCY: 248713.0 COMM\_SYN:0.08% COMM\_TRANS:0.05% MVMUL:174800.00 MVMUL:70.28% VEC:0.10% MEM:72743.00 MEM:29.25% ratio:99.77% COMM Volume:3.25kB MEM Volume:97.38kB

43 MVMUL:832 MEM:779 LATENCY: 248649.0 COMM\_SYN:0.07% COMM\_TRANS:0.05% MVMUL:174200.00 MVMUL:70.06% VEC:0.10% MEM:73318.00 MEM:29.49% ratio:99.77% COMM Volume:3.25kB MEM Volume:97.31kB

44 MVMUL:813 MEM:1517 LATENCY: 248585.0 COMM\_SYN:1.60% COMM\_TRANS:0.03% MVMUL:171000.00 MVMUL:68.79% VEC:0.00% MEM:73239.00 MEM:29.46% ratio:99.88% COMM Volume:1.62kB MEM Volume:233.47kB

45 MVMUL:817 MEM:1240 LATENCY: 247298.0 COMM\_SYN:0.44% COMM\_TRANS:0.05% MVMUL:171200.00 MVMUL:69.23% VEC:0.19% MEM:73378.00 MEM:29.67% ratio:99.58% COMM Volume:3.00kB MEM Volume:250.94kB

46 MVMUL:792 MEM:712 LATENCY: 240788.0 COMM\_SYN:0.00% COMM\_TRANS:0.05% MVMUL:166200.00 MVMUL:69.02% VEC:0.00% MEM:73350.00 MEM:30.46% ratio:99.54% COMM Volume:3.00kB MEM Volume:122.38kB

47 MVMUL:792 MEM:723 LATENCY: 240820.0 COMM\_SYN:1.03% COMM\_TRANS:0.05% MVMUL:167842.00 MVMUL:69.70% VEC:0.20% MEM:68785.00 MEM:28.56% ratio:99.54% COMM Volume:3.00kB MEM Volume:125.25kB

48 MVMUL:796 MEM:885 LATENCY: 241554.0 COMM\_SYN:0.00% COMM\_TRANS:0.05% MVMUL:167000.00 MVMUL:69.14% VEC:0.00% MEM:74168.00 MEM:30.70% ratio:99.89% COMM Volume:3.00kB MEM Volume:157.00kB

49 MVMUL:820 MEM:1231 LATENCY: 247324.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:171800.00 MVMUL:69.46% VEC:0.00% MEM:75264.00 MEM:30.43% ratio:99.89% COMM Volume:0.00kB MEM Volume:230.69kB

50 MVMUL:789 MEM:1186 LATENCY: 240841.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:165600.00 MVMUL:68.76% VEC:0.00% MEM:74261.00 MEM:30.83% ratio:99.59% COMM Volume:0.00kB MEM Volume:235.00kB

51 MVMUL:766 MEM:897 LATENCY: 231038.0 COMM\_SYN:0.02% COMM\_TRANS:0.05% MVMUL:160400.00 MVMUL:69.43% VEC:0.21% MEM:68960.00 MEM:29.85% ratio:99.55% COMM Volume:3.00kB MEM Volume:172.62kB

52 MVMUL:766 MEM:701 LATENCY: 231286.0 COMM\_SYN:0.19% COMM\_TRANS:0.10% MVMUL:160400.00 MVMUL:69.35% VEC:0.19% MEM:68825.00 MEM:29.76% ratio:99.58% COMM Volume:5.75kB MEM Volume:119.81kB

53 MVMUL:764 MEM:688 LATENCY: 231118.0 COMM\_SYN:0.06% COMM\_TRANS:0.05% MVMUL:160600.00 MVMUL:69.49% VEC:0.00% MEM:69242.00 MEM:29.96% ratio:99.55% COMM Volume:2.75kB MEM Volume:118.19kB

54 MVMUL:642 MEM:899 LATENCY: 223573.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:135600.00 MVMUL:60.65% VEC:0.00% MEM:86461.00 MEM:38.67% ratio:99.32% COMM Volume:0.00kB MEM Volume:181.94kB

55 MVMUL:403 MEM:590 LATENCY: 236000.0 COMM\_SYN:58.32% COMM\_TRANS:0.08% MVMUL:88400.00 MVMUL:37.46% VEC:0.33% MEM:7337.00 MEM:3.11% ratio:99.30% COMM Volume:4.88kB MEM Volume:121.56kB

56 MVMUL:481 MEM:655 LATENCY: 236436.0 COMM\_SYN:9.31% COMM\_TRANS:0.10% MVMUL:104000.00 MVMUL:43.99% VEC:0.11% MEM:109385.00 MEM:46.26% ratio:99.78% COMM Volume:6.09kB MEM Volume:123.06kB

57 MVMUL:582 MEM:884 LATENCY: 236392.0 COMM\_SYN:0.69% COMM\_TRANS:0.12% MVMUL:124200.00 MVMUL:52.54% VEC:0.41% MEM:108071.00 MEM:45.72% ratio:99.48% COMM Volume:7.22kB MEM Volume:202.19kB

58 MVMUL:366 MEM:503 LATENCY: 225698.0 COMM\_SYN:14.11% COMM\_TRANS:0.15% MVMUL:80400.00 MVMUL:35.62% VEC:0.29% MEM:111007.00 MEM:49.18% ratio:99.36% COMM Volume:8.62kB MEM Volume:91.66kB

59 MVMUL:426 MEM:561 LATENCY: 225833.0 COMM\_SYN:12.81% COMM\_TRANS:0.12% MVMUL:92400.00 MVMUL:40.92% VEC:0.10% MEM:103511.00 MEM:45.84% ratio:99.78% COMM Volume:7.00kB MEM Volume:109.38kB

60 MVMUL:563 MEM:845 LATENCY: 236118.0 COMM\_SYN:2.46% COMM\_TRANS:0.13% MVMUL:120400.00 MVMUL:50.99% VEC:0.44% MEM:106486.00 MEM:45.10% ratio:99.12% COMM Volume:7.88kB MEM Volume:220.50kB

61 MVMUL:416 MEM:365 LATENCY: 236374.0 COMM\_SYN:12.96% COMM\_TRANS:0.11% MVMUL:91000.00 MVMUL:38.50% VEC:0.00% MEM:112393.00 MEM:47.55% ratio:99.12% COMM Volume:6.50kB MEM Volume:81.62kB

62 MVMUL:442 MEM:395 LATENCY: 180184.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:98000.00 MVMUL:54.39% VEC:0.00% MEM:81414.00 MEM:45.18% ratio:99.57% COMM Volume:0.00kB MEM Volume:90.38kB

63 MVMUL:728 MEM:990 LATENCY: 248541.0 COMM\_SYN:0.00% COMM\_TRANS:0.00% MVMUL:153400.00 MVMUL:61.72% VEC:0.00% MEM:93061.00 MEM:37.44% ratio:99.16% COMM Volume:0.00kB MEM Volume:241.12kB

64 MVMUL:416 MEM:435 LATENCY: 180276.0 COMM\_SYN:3.64% COMM\_TRANS:0.14% MVMUL:92800.00 MVMUL:51.48% VEC:0.58% MEM:77190.00 MEM:42.82% ratio:98.66% COMM Volume:6.50kB MEM Volume:113.50kB

65 MVMUL:416 MEM:370 LATENCY: 180332.0 COMM\_SYN:4.68% COMM\_TRANS:0.29% MVMUL:92800.00 MVMUL:51.46% VEC:0.58% MEM:75126.00 MEM:41.66% ratio:98.67% COMM Volume:13.00kB MEM Volume:84.00kB

66 MVMUL:148 MEM:170 LATENCY: 180284.0 COMM\_SYN:21.61% COMM\_TRANS:0.63% MVMUL:37400.00 MVMUL:20.75% VEC:1.95% MEM:91438.00 MEM:50.72% ratio:95.65% COMM Volume:27.98kB MEM Volume:82.00kB

67 MVMUL:92 MEM:116 LATENCY: 163322.0 COMM\_SYN:25.23% COMM\_TRANS:1.07% MVMUL:25600.00 MVMUL:15.67% VEC:2.16% MEM:83565.00 MEM:51.17% ratio:95.30% COMM Volume:42.97kB MEM Volume:69.88kB

68 MVMUL:92 MEM:116 LATENCY: 163366.0 COMM\_SYN:27.74% COMM\_TRANS:1.07% MVMUL:25600.00 MVMUL:15.67% VEC:2.15% MEM:79506.00 MEM:48.67% ratio:95.30% COMM Volume:42.97kB MEM Volume:69.88kB

69 MVMUL:92 MEM:116 LATENCY: 163398.0 COMM\_SYN:21.35% COMM\_TRANS:1.06% MVMUL:26200.00 MVMUL:16.03% VEC:2.15% MEM:89055.00 MEM:54.50% ratio:95.10% COMM Volume:42.97kB MEM Volume:69.88kB

70 MVMUL:92 MEM:116 LATENCY: 163430.0 COMM\_SYN:21.04% COMM\_TRANS:1.06% MVMUL:25600.00 MVMUL:15.66% VEC:2.15% MEM:90504.00 MEM:55.38% ratio:95.30% COMM Volume:42.97kB MEM Volume:69.88kB

71 MVMUL:92 MEM:116 LATENCY: 163462.0 COMM\_SYN:21.24% COMM\_TRANS:1.07% MVMUL:25600.00 MVMUL:15.66% VEC:2.15% MEM:90197.00 MEM:55.18% ratio:95.30% COMM Volume:42.97kB MEM Volume:69.88kB

72 MVMUL:92 MEM:116 LATENCY: 163494.0 COMM\_SYN:21.51% COMM\_TRANS:1.07% MVMUL:25600.00 MVMUL:15.66% VEC:2.15% MEM:89782.00 MEM:54.91% ratio:95.30% COMM Volume:42.97kB MEM Volume:69.88kB

73 MVMUL:54 MEM:63 LATENCY: 149582.0 COMM\_SYN:44.61% COMM\_TRANS:0.58% MVMUL:17400.00 MVMUL:11.63% VEC:0.00% MEM:58510.00 MEM:39.12% ratio:95.94% COMM Volume:21.48kB MEM Volume:31.08kB

74 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

75 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

76 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

77 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

78 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

79 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

80 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

81 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

82 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

83 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

84 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

85 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

86 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

87 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

88 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

89 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

90 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

91 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

92 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

93 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

94 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

95 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

96 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

97 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

98 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

99 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

100 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

101 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

102 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

103 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

104 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

105 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

106 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

107 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

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109 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

110 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

111 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

112 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

113 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

114 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

115 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

116 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

117 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

118 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

119 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

120 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

121 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

122 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

123 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

124 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

125 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

126 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

127 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

128 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

129 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

130 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

131 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

132 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

133 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

134 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

135 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

136 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

137 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

138 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

139 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

140 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

141 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

142 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

143 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

practical (ns)

249033.00

MVMUL (#)

50962

VVADD (#)

50962

COMM (#)

860

Volume (bytes)

228976

Cycles (ns)

18051

MEM (#)

65449

Volume (bytes)

4727808

Cycles (ns)

5827871

HT Volume (bytes)

0

Cycles (ns)

0

============================= OVERALL TIME =============================

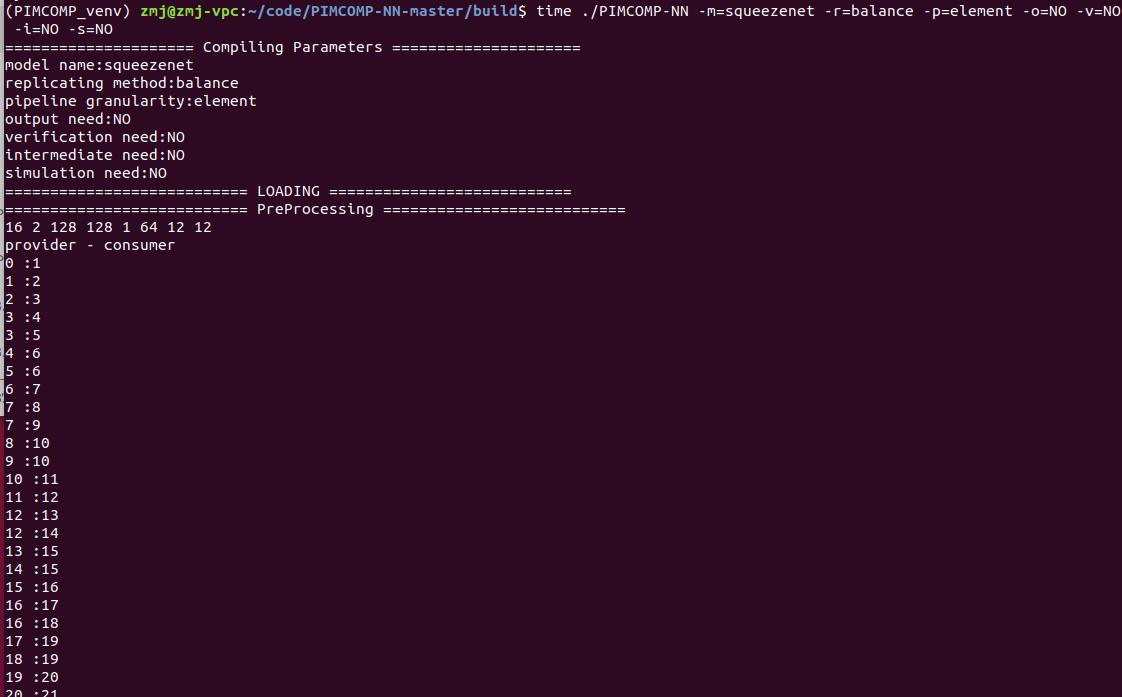
7.62s

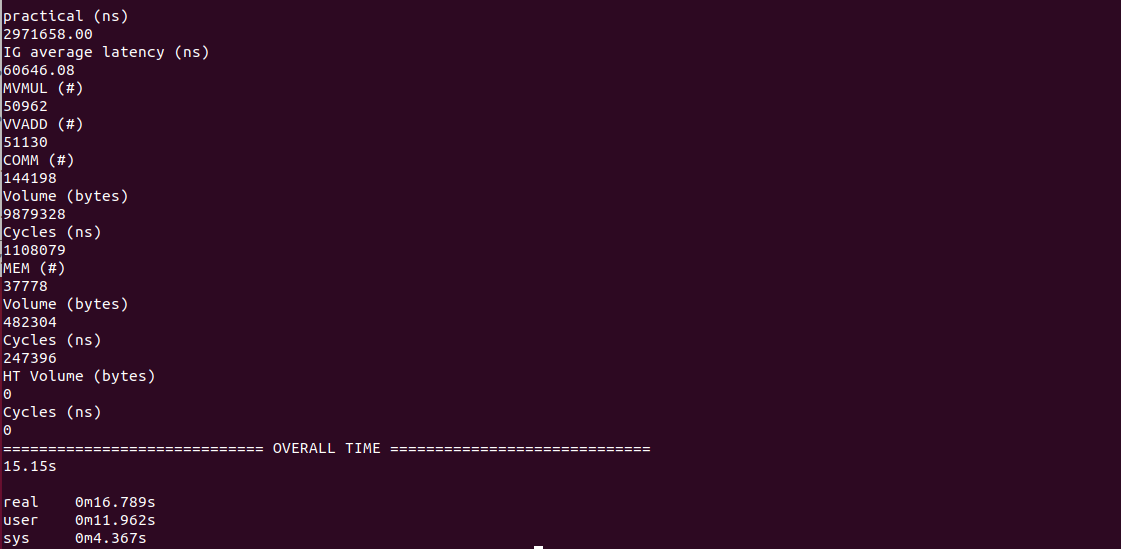
real 0m8.009s

user 0m5.792s

sys 0m2.052s

## HT





(PIMCOMP\_venv) zmj@zmj-vpc:~/code/PIMCOMP-NN-master/build$ time ./PIMCOMP-NN -m=squeezenet -r=balance -p=element -o=NO -v=NO -i=NO -s=NO

===================== Compiling Parameters =====================

model name:squeezenet

replicating method:balance

pipeline granularity:element

output need:NO

verification need:NO

intermediate need:NO

simulation need:NO

=========================== LOADING ===========================

=========================== PreProcessing ===========================

16 2 128 128 1 64 12 12

provider - consumer

0 :1

1 :2

2 :3

3 :4

3 :5

4 :6

5 :6

6 :7

7 :8

7 :9

8 :10

9 :10

10 :11

11 :12

12 :13

12 :14

13 :15

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31 :32

32 :33

33 :34

33 :35

34 :36

35 :36

36 :37

37 :38

38 :39

39 :40

40 :-1

consumer - provider

1 :0

2 :1

3 :2

4 :3

5 :3

6 :4

6 :5

7 :6

8 :7

9 :7

10 :8

10 :9

11 :10

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32 :30

32 :31

33 :32

34 :33

35 :33

36 :34

36 :35

37 :36

38 :37

39 :38

40 :39

=========================== MODEL INFO ===========================

#Nodes in total: 41

1

input: 294kB

output: 1540.12kB

Weight Matrix:27 × 64

min crossbar:1

3

input: 378.125kB

output: 94.5312kB

Weight Matrix:64 × 16

min crossbar:1

4

input: 94.5312kB

output: 378.125kB

Weight Matrix:16 × 64

min crossbar:1

5

input: 94.5312kB

output: 378.125kB

Weight Matrix:144 × 64

min crossbar:1

7

input: 756.25kB

output: 94.5312kB

Weight Matrix:128 × 16

min crossbar:1

8

input: 94.5312kB

output: 378.125kB

Weight Matrix:16 × 64

min crossbar:1

9

input: 94.5312kB

output: 378.125kB

Weight Matrix:144 × 64

min crossbar:1

12

input: 182.25kB

output: 45.5625kB

Weight Matrix:128 × 32

min crossbar:1

13

input: 45.5625kB

output: 182.25kB

Weight Matrix:32 × 128

min crossbar:1

14

input: 45.5625kB

output: 182.25kB

Weight Matrix:288 × 128

min crossbar:1

16

input: 364.5kB

output: 45.5625kB

Weight Matrix:256 × 32

min crossbar:1

17

input: 45.5625kB

output: 182.25kB

Weight Matrix:32 × 128

min crossbar:1

18

input: 45.5625kB

output: 182.25kB

Weight Matrix:288 × 128

min crossbar:1

21

input: 84.5kB

output: 15.8438kB

Weight Matrix:256 × 48

min crossbar:1

22

input: 15.8438kB

output: 63.375kB

Weight Matrix:48 × 192

min crossbar:2

23

input: 15.8438kB

output: 63.375kB

Weight Matrix:432 × 192

min crossbar:2

25

input: 126.75kB

output: 15.8438kB

Weight Matrix:384 × 48

min crossbar:1

26

input: 15.8438kB

output: 63.375kB

Weight Matrix:48 × 192

min crossbar:2

27

input: 15.8438kB

output: 63.375kB

Weight Matrix:432 × 192

min crossbar:2

29

input: 126.75kB

output: 21.125kB

Weight Matrix:384 × 64

min crossbar:1

30

input: 21.125kB

output: 84.5kB

Weight Matrix:64 × 256

min crossbar:2

31

input: 21.125kB

output: 84.5kB

Weight Matrix:576 × 256

min crossbar:2

33

input: 169kB

output: 21.125kB

Weight Matrix:512 × 64

min crossbar:1

34

input: 21.125kB

output: 84.5kB

Weight Matrix:64 × 256

min crossbar:2

35

input: 21.125kB

output: 84.5kB

Weight Matrix:576 × 256

min crossbar:2

38

input: 169kB

output: 330.078kB

Weight Matrix:512 × 1000

min crossbar:8

FC Weight: 0MB

Sum Weight: 2.349MB

FC Ratio: 0%

Output Sum:4.9388MB

Minimum Crossbar Num in One Core:8

=========================== REPLICATING ===========================

node:1 replication\_num:953

node:3 replication\_num:233

node:4 replication\_num:241

node:5 replication\_num:233

node:7 replication\_num:233

node:8 replication\_num:233

node:9 replication\_num:233

node:12 replication\_num:57

node:13 replication\_num:57

node:14 replication\_num:59

node:16 replication\_num:57

node:17 replication\_num:61

node:18 replication\_num:61

node:21 replication\_num:15

node:22 replication\_num:15

node:23 replication\_num:13

node:25 replication\_num:13

node:26 replication\_num:15

node:27 replication\_num:15

node:29 replication\_num:15

node:30 replication\_num:13

node:31 replication\_num:13

node:33 replication\_num:13

node:34 replication\_num:13

node:35 replication\_num:13

node:38 replication\_num:15

=========================== PARTITIONING ===========================

#RRAMs needed: 4716

#ArrayGroups needed: 3998

RRAMs Usage: 51.1719%

Replication Check Pass!

============================= MAPPING =============================

0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 4 0 0 0 0 0 0 16 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64

split AG num: 0

Mapping Check Pass!

========================= ELEMENT PIPELINE SCHEDULING =========================

node:0 operation:OP\_INPUT core:0

node:2 operation:OP\_POOL core:2

node:6 operation:OP\_CONCAT core:6

node:10 operation:OP\_CONCAT core:10

node:11 operation:OP\_POOL core:11

node:15 operation:OP\_CONCAT core:15

node:19 operation:OP\_CONCAT core:19

node:20 operation:OP\_POOL core:20

node:24 operation:OP\_CONCAT core:24

node:28 operation:OP\_CONCAT core:28

node:32 operation:OP\_CONCAT core:32

node:36 operation:OP\_CONCAT core:36

node:37 operation:OP\_DROPOUT core:37

node:39 operation:OP\_POOL core:39

node:40 operation:OP\_SOFTMAX core:40

Element Pipeline Instruction Group Index: 0

max\_memory\_core\_index:2 130.625 kB

Element Pipeline Instruction Group Index: 1

max\_memory\_core\_index:2 150.5 kB

Element Pipeline Instruction Group Index: 2

max\_memory\_core\_index:2 146.875 kB

Element Pipeline Instruction Group Index: 3

max\_memory\_core\_index:2 155 kB

Element Pipeline Instruction Group Index: 4

max\_memory\_core\_index:2 154.125 kB

Element Pipeline Instruction Group Index: 5

max\_memory\_core\_index:2 145.75 kB

Element Pipeline Instruction Group Index: 6

max\_memory\_core\_index:2 151.625 kB

Element Pipeline Instruction Group Index: 7

max\_memory\_core\_index:2 157.25 kB

Element Pipeline Instruction Group Index: 8

max\_memory\_core\_index:2 149.375 kB

Element Pipeline Instruction Group Index: 9

max\_memory\_core\_index:2 148.25 kB

Element Pipeline Instruction Group Index: 10

max\_memory\_core\_index:2 156.375 kB

Element Pipeline Instruction Group Index: 11

max\_memory\_core\_index:2 152.5 kB

Element Pipeline Instruction Group Index: 12

max\_memory\_core\_index:2 136.375 kB

Element Pipeline Instruction Group Index: 13

max\_memory\_core\_index:11 88.5 kB

Element Pipeline Instruction Group Index: 14

max\_memory\_core\_index:11 85.75 kB

Element Pipeline Instruction Group Index: 15

max\_memory\_core\_index:11 85.5 kB

Element Pipeline Instruction Group Index: 16

max\_memory\_core\_index:11 88.75 kB

Element Pipeline Instruction Group Index: 17

max\_memory\_core\_index:11 92 kB

Element Pipeline Instruction Group Index: 18

max\_memory\_core\_index:11 95.25 kB

Element Pipeline Instruction Group Index: 19

max\_memory\_core\_index:11 96.5 kB

Element Pipeline Instruction Group Index: 20

max\_memory\_core\_index:11 72.25 kB

Element Pipeline Instruction Group Index: 21

max\_memory\_core\_index:20 62.625 kB

Element Pipeline Instruction Group Index: 22

max\_memory\_core\_index:20 60.125 kB

Element Pipeline Instruction Group Index: 23

max\_memory\_core\_index:20 59.625 kB

Element Pipeline Instruction Group Index: 24

max\_memory\_core\_index:20 57.125 kB

Element Pipeline Instruction Group Index: 25

max\_memory\_core\_index:20 56.625 kB

Element Pipeline Instruction Group Index: 26

max\_memory\_core\_index:20 54.125 kB

Element Pipeline Instruction Group Index: 27

max\_memory\_core\_index:20 52.625 kB

Element Pipeline Instruction Group Index: 28

max\_memory\_core\_index:20 50.625 kB

Element Pipeline Instruction Group Index: 29

max\_memory\_core\_index:32 37.5312 kB

Element Pipeline Instruction Group Index: 30

max\_memory\_core\_index:32 37.5312 kB

Element Pipeline Instruction Group Index: 31

max\_memory\_core\_index:32 37.5312 kB

Element Pipeline Instruction Group Index: 32

max\_memory\_core\_index:32 37.5312 kB

Element Pipeline Instruction Group Index: 33

max\_memory\_core\_index:32 37.5312 kB

Element Pipeline Instruction Group Index: 34

max\_memory\_core\_index:32 37.5312 kB

Element Pipeline Instruction Group Index: 35

max\_memory\_core\_index:39 42.5156 kB

Element Pipeline Instruction Group Index: 36

max\_memory\_core\_index:39 67.9062 kB

Element Pipeline Instruction Group Index: 37

max\_memory\_core\_index:39 93.2969 kB

Element Pipeline Instruction Group Index: 38

max\_memory\_core\_index:39 118.688 kB

Element Pipeline Instruction Group Index: 39

max\_memory\_core\_index:39 144.078 kB

Element Pipeline Instruction Group Index: 40

max\_memory\_core\_index:39 169.469 kB

Element Pipeline Instruction Group Index: 41

max\_memory\_core\_index:39 194.859 kB

Element Pipeline Instruction Group Index: 42

max\_memory\_core\_index:39 220.25 kB

Element Pipeline Instruction Group Index: 43

max\_memory\_core\_index:39 245.641 kB

Element Pipeline Instruction Group Index: 44

max\_memory\_core\_index:39 271.031 kB

Element Pipeline Instruction Group Index: 45

max\_memory\_core\_index:39 296.422 kB

Element Pipeline Instruction Group Index: 46

max\_memory\_core\_index:39 321.812 kB

Element Pipeline Instruction Group Index: 47

max\_memory\_core\_index:39 347.203 kB

Element Pipeline Instruction Group Index: 48

max\_memory\_core\_index:0 0 kB

[effective\_instruction\_group\_num]:49

================= Check Result =================

Node Expected Index Num

1: 12321 12321 12321

2: 3025 3025 3025

3: 3025 3025 3025

4: 3025 3025 3025

5: 3025 3025 3025

6: 3025 3025 3025

7: 3025 3025 3025

8: 3025 3025 3025

9: 3025 3025 3025

10: 3025 3025 3025

11: 729 729 729

12: 729 729 729

13: 729 729 729

14: 729 729 729

15: 729 729 729

16: 729 729 729

17: 729 729 729

18: 729 729 729

19: 729 729 729

20: 169 169 169

21: 169 169 169

22: 169 169 169

23: 169 169 169

24: 169 169 169

25: 169 169 169

26: 169 169 169

27: 169 169 169

28: 169 169 169

29: 169 169 169

30: 169 169 169

31: 169 169 169

32: 169 169 169

33: 169 169 169

34: 169 169 169

35: 169 169 169

36: 169 169 169

38: 169 169 169

39: 1 1 1

----------------- PASS -----------------

=========================== OPTIMIZATION ===========================

============================= PLACING =============================

============================= EVALUATING =============================

instruction\_group\_num:49

0 MVMUL:832 MEM:2611 LATENCY: 1191305.0 COMM\_SYN:84.89% COMM\_TRANS:0.43% MVMUL:174200.00 MVMUL:14.62% VEC:0.00% MEM:29.00 MEM:0.00% ratio:99.95% COMM Volume:104.00kB MEM Volume:29.73kB

1 MVMUL:832 MEM:2618 LATENCY: 1191625.0 COMM\_SYN:84.96% COMM\_TRANS:0.35% MVMUL:174200.00 MVMUL:14.62% VEC:0.00% MEM:156.00 MEM:0.01% ratio:99.95% COMM Volume:104.00kB MEM Volume:29.74kB

2 MVMUL:832 MEM:2534 LATENCY: 1297456.0 COMM\_SYN:40.54% COMM\_TRANS:5.68% MVMUL:174200.00 MVMUL:13.43% VEC:40.28% MEM:267.00 MEM:0.02% ratio:99.95% COMM Volume:1814.25kB MEM Volume:29.71kB

3 MVMUL:832 MEM:2533 LATENCY: 1192585.0 COMM\_SYN:84.96% COMM\_TRANS:0.35% MVMUL:174200.00 MVMUL:14.61% VEC:0.00% MEM:399.00 MEM:0.03% ratio:99.95% COMM Volume:104.00kB MEM Volume:29.73kB

4 MVMUL:832 MEM:2533 LATENCY: 1192905.0 COMM\_SYN:84.96% COMM\_TRANS:0.35% MVMUL:174200.00 MVMUL:14.60% VEC:0.00% MEM:443.00 MEM:0.04% ratio:99.95% COMM Volume:104.00kB MEM Volume:29.73kB

5 MVMUL:832 MEM:2535 LATENCY: 1193225.0 COMM\_SYN:84.94% COMM\_TRANS:0.35% MVMUL:174200.00 MVMUL:14.60% VEC:0.00% MEM:676.00 MEM:0.06% ratio:99.95% COMM Volume:104.00kB MEM Volume:29.74kB

6 MVMUL:832 MEM:2536 LATENCY: 1778583.0 COMM\_SYN:76.85% COMM\_TRANS:9.87% MVMUL:174200.00 MVMUL:9.79% VEC:3.40% MEM:789.00 MEM:0.04% ratio:99.96% COMM Volume:1616.50kB MEM Volume:29.74kB

7 MVMUL:832 MEM:2531 LATENCY: 1225855.0 COMM\_SYN:85.27% COMM\_TRANS:0.34% MVMUL:174200.00 MVMUL:14.21% VEC:0.00% MEM:1573.00 MEM:0.13% ratio:99.95% COMM Volume:104.00kB MEM Volume:29.73kB

8 MVMUL:832 MEM:2536 LATENCY: 1226175.0 COMM\_SYN:85.26% COMM\_TRANS:0.34% MVMUL:174200.00 MVMUL:14.21% VEC:0.00% MEM:1705.00 MEM:0.14% ratio:99.95% COMM Volume:104.00kB MEM Volume:29.74kB

9 MVMUL:832 MEM:2533 LATENCY: 1226495.0 COMM\_SYN:85.25% COMM\_TRANS:0.34% MVMUL:174200.00 MVMUL:14.20% VEC:0.00% MEM:1880.00 MEM:0.15% ratio:99.95% COMM Volume:104.00kB MEM Volume:29.73kB

10 MVMUL:832 MEM:2536 LATENCY: 2105970.0 COMM\_SYN:83.90% COMM\_TRANS:4.82% MVMUL:174200.00 MVMUL:8.27% VEC:2.87% MEM:2106.00 MEM:0.10% ratio:99.97% COMM Volume:1616.50kB MEM Volume:29.74kB

11 MVMUL:832 MEM:2531 LATENCY: 2126608.0 COMM\_SYN:77.79% COMM\_TRANS:2.22% MVMUL:174200.00 MVMUL:8.19% VEC:11.66% MEM:2409.00 MEM:0.11% ratio:99.97% COMM Volume:1042.50kB MEM Volume:29.73kB

12 MVMUL:832 MEM:2536 LATENCY: 1258691.0 COMM\_SYN:85.58% COMM\_TRANS:0.33% MVMUL:174200.00 MVMUL:13.84% VEC:0.00% MEM:2523.00 MEM:0.20% ratio:99.95% COMM Volume:104.00kB MEM Volume:29.74kB

13 MVMUL:821 MEM:2502 LATENCY: 1258956.0 COMM\_SYN:85.74% COMM\_TRANS:0.33% MVMUL:172000.00 MVMUL:13.66% VEC:0.00% MEM:2823.00 MEM:0.22% ratio:99.95% COMM Volume:102.62kB MEM Volume:29.32kB

14 MVMUL:775 MEM:2088 LATENCY: 1444999.0 COMM\_SYN:88.06% COMM\_TRANS:0.32% MVMUL:164000.00 MVMUL:11.35% VEC:0.00% MEM:3408.00 MEM:0.24% ratio:99.97% COMM Volume:109.16kB MEM Volume:24.52kB

15 MVMUL:832 MEM:1 LATENCY: 2276806.0 COMM\_SYN:87.68% COMM\_TRANS:3.26% MVMUL:174200.00 MVMUL:7.65% VEC:1.28% MEM:2634.00 MEM:0.12% ratio:99.98% COMM Volume:939.69kB MEM Volume:0.03kB

16 MVMUL:832 MEM:1 LATENCY: 1446061.0 COMM\_SYN:86.97% COMM\_TRANS:0.77% MVMUL:174200.00 MVMUL:12.05% VEC:0.00% MEM:2635.00 MEM:0.18% ratio:99.97% COMM Volume:211.91kB MEM Volume:0.03kB

17 MVMUL:832 MEM:1 LATENCY: 1543106.0 COMM\_SYN:87.67% COMM\_TRANS:0.80% MVMUL:174800.00 MVMUL:11.33% VEC:0.00% MEM:2660.00 MEM:0.17% ratio:99.97% COMM Volume:211.16kB MEM Volume:0.03kB

18 MVMUL:828 MEM:2 LATENCY: 1557901.0 COMM\_SYN:85.32% COMM\_TRANS:3.33% MVMUL:173400.00 MVMUL:11.13% VEC:0.00% MEM:2685.00 MEM:0.17% ratio:99.96% COMM Volume:172.22kB MEM Volume:0.16kB

19 MVMUL:832 MEM:1 LATENCY: 2375046.0 COMM\_SYN:89.17% COMM\_TRANS:2.13% MVMUL:174200.00 MVMUL:7.33% VEC:1.23% MEM:2697.00 MEM:0.11% ratio:99.98% COMM Volume:859.00kB MEM Volume:0.12kB

20 MVMUL:807 MEM:1 LATENCY: 2397471.0 COMM\_SYN:86.72% COMM\_TRANS:1.27% MVMUL:169800.00 MVMUL:7.08% VEC:4.79% MEM:2721.00 MEM:0.11% ratio:99.97% COMM Volume:575.09kB MEM Volume:0.12kB

21 MVMUL:768 MEM:1 LATENCY: 1558821.0 COMM\_SYN:89.08% COMM\_TRANS:0.35% MVMUL:161400.00 MVMUL:10.35% VEC:0.00% MEM:2741.00 MEM:0.18% ratio:99.96% COMM Volume:120.00kB MEM Volume:0.12kB

22 MVMUL:813 MEM:2 LATENCY: 1559031.0 COMM\_SYN:88.51% COMM\_TRANS:0.32% MVMUL:170400.00 MVMUL:10.93% VEC:0.02% MEM:2775.00 MEM:0.18% ratio:99.96% COMM Volume:103.84kB MEM Volume:0.25kB

23 MVMUL:832 MEM:1 LATENCY: 1559191.0 COMM\_SYN:87.78% COMM\_TRANS:0.31% MVMUL:182000.00 MVMUL:11.67% VEC:0.02% MEM:2805.00 MEM:0.18% ratio:99.95% COMM Volume:95.19kB MEM Volume:0.12kB

24 MVMUL:832 MEM:1 LATENCY: 2584193.0 COMM\_SYN:91.66% COMM\_TRANS:0.75% MVMUL:182000.00 MVMUL:7.04% VEC:0.40% MEM:2809.00 MEM:0.11% ratio:99.97% COMM Volume:359.38kB MEM Volume:0.12kB

25 MVMUL:832 MEM:1 LATENCY: 1559511.0 COMM\_SYN:87.78% COMM\_TRANS:0.31% MVMUL:182000.00 MVMUL:11.67% VEC:0.02% MEM:2811.00 MEM:0.18% ratio:99.95% COMM Volume:96.12kB MEM Volume:0.12kB

26 MVMUL:832 MEM:1 LATENCY: 1656591.0 COMM\_SYN:88.31% COMM\_TRANS:0.43% MVMUL:182600.00 MVMUL:11.02% VEC:0.02% MEM:2831.00 MEM:0.17% ratio:99.95% COMM Volume:96.19kB MEM Volume:0.12kB

27 MVMUL:832 MEM:1 LATENCY: 1656755.0 COMM\_SYN:88.49% COMM\_TRANS:0.29% MVMUL:182000.00 MVMUL:10.99% VEC:0.02% MEM:2861.00 MEM:0.17% ratio:99.96% COMM Volume:96.00kB MEM Volume:0.12kB

28 MVMUL:832 MEM:1 LATENCY: 2721319.0 COMM\_SYN:91.88% COMM\_TRANS:0.92% MVMUL:182000.00 MVMUL:6.69% VEC:0.38% MEM:2865.00 MEM:0.11% ratio:99.97% COMM Volume:366.00kB MEM Volume:0.12kB

29 MVMUL:824 MEM:2 LATENCY: 1885547.0 COMM\_SYN:84.41% COMM\_TRANS:5.80% MVMUL:181000.00 MVMUL:9.60% VEC:0.00% MEM:2890.00 MEM:0.15% ratio:99.97% COMM Volume:186.94kB MEM Volume:0.16kB

30 MVMUL:832 MEM:1 LATENCY: 1886083.0 COMM\_SYN:89.77% COMM\_TRANS:0.81% MVMUL:174200.00 MVMUL:9.24% VEC:0.00% MEM:2891.00 MEM:0.15% ratio:99.97% COMM Volume:315.91kB MEM Volume:0.03kB

31 MVMUL:832 MEM:1 LATENCY: 2000355.0 COMM\_SYN:90.32% COMM\_TRANS:0.77% MVMUL:174800.00 MVMUL:8.74% VEC:0.00% MEM:2896.00 MEM:0.14% ratio:99.97% COMM Volume:315.94kB MEM Volume:0.03kB

32 MVMUL:832 MEM:1 LATENCY: 2802147.0 COMM\_SYN:91.73% COMM\_TRANS:1.45% MVMUL:174200.00 MVMUL:6.22% VEC:0.48% MEM:2897.00 MEM:0.10% ratio:99.98% COMM Volume:653.91kB MEM Volume:0.03kB

33 MVMUL:828 MEM:2 LATENCY: 2001101.0 COMM\_SYN:87.68% COMM\_TRANS:3.47% MVMUL:173400.00 MVMUL:8.67% VEC:0.00% MEM:2920.00 MEM:0.15% ratio:99.96% COMM Volume:169.50kB MEM Volume:0.16kB

34 MVMUL:832 MEM:1 LATENCY: 2001421.0 COMM\_SYN:90.83% COMM\_TRANS:0.29% MVMUL:174200.00 MVMUL:8.70% VEC:0.00% MEM:2924.00 MEM:0.15% ratio:99.97% COMM Volume:130.00kB MEM Volume:0.12kB

35 MVMUL:832 MEM:1 LATENCY: 2026554.0 COMM\_SYN:90.91% COMM\_TRANS:0.29% MVMUL:174800.00 MVMUL:8.63% VEC:0.00% MEM:2928.00 MEM:0.14% ratio:99.97% COMM Volume:130.00kB MEM Volume:0.12kB

36 MVMUL:828 MEM:2 LATENCY: 2907256.0 COMM\_SYN:92.62% COMM\_TRANS:0.80% MVMUL:174000.00 MVMUL:5.99% VEC:0.47% MEM:2948.00 MEM:0.10% ratio:99.98% COMM Volume:545.69kB MEM Volume:0.25kB

37 MVMUL:832 MEM:1 LATENCY: 2002201.0 COMM\_SYN:90.47% COMM\_TRANS:0.27% MVMUL:182000.00 MVMUL:9.09% VEC:0.01% MEM:2950.00 MEM:0.15% ratio:99.99% COMM Volume:95.22kB MEM Volume:0.12kB

38 MVMUL:832 MEM:1 LATENCY: 2002361.0 COMM\_SYN:90.47% COMM\_TRANS:0.24% MVMUL:182000.00 MVMUL:9.09% VEC:0.01% MEM:2960.00 MEM:0.15% ratio:99.96% COMM Volume:95.69kB MEM Volume:0.12kB

39 MVMUL:832 MEM:2 LATENCY: 2971658.0 COMM\_SYN:91.28% COMM\_TRANS:0.62% MVMUL:182600.00 MVMUL:6.14% VEC:1.83% MEM:3004.00 MEM:0.10% ratio:99.97% COMM Volume:426.36kB MEM Volume:2.08kB

40 MVMUL:832 MEM:1 LATENCY: 2027064.0 COMM\_SYN:90.59% COMM\_TRANS:0.24% MVMUL:182000.00 MVMUL:8.98% VEC:0.01% MEM:2980.00 MEM:0.15% ratio:99.96% COMM Volume:96.28kB MEM Volume:0.12kB

41 MVMUL:832 MEM:1 LATENCY: 2037254.0 COMM\_SYN:90.63% COMM\_TRANS:0.24% MVMUL:182000.00 MVMUL:8.93% VEC:0.01% MEM:2984.00 MEM:0.15% ratio:99.96% COMM Volume:96.22kB MEM Volume:0.12kB

42 MVMUL:832 MEM:1 LATENCY: 2050496.0 COMM\_SYN:90.70% COMM\_TRANS:0.23% MVMUL:182000.00 MVMUL:8.88% VEC:0.01% MEM:2988.00 MEM:0.15% ratio:99.96% COMM Volume:95.41kB MEM Volume:0.12kB

43 MVMUL:832 MEM:1 LATENCY: 2063737.0 COMM\_SYN:90.75% COMM\_TRANS:0.24% MVMUL:182000.00 MVMUL:8.82% VEC:0.01% MEM:3008.00 MEM:0.15% ratio:99.96% COMM Volume:95.09kB MEM Volume:0.12kB

44 MVMUL:814 MEM:2 LATENCY: 2168472.0 COMM\_SYN:90.26% COMM\_TRANS:1.26% MVMUL:180200.00 MVMUL:8.31% VEC:0.00% MEM:3011.00 MEM:0.14% ratio:99.97% COMM Volume:346.94kB MEM Volume:0.19kB

45 MVMUL:818 MEM:3 LATENCY: 2238481.0 COMM\_SYN:90.72% COMM\_TRANS:1.37% MVMUL:172000.00 MVMUL:7.68% VEC:0.03% MEM:3048.00 MEM:0.14% ratio:99.94% COMM Volume:253.69kB MEM Volume:0.56kB

46 MVMUL:826 MEM:1 LATENCY: 2238671.0 COMM\_SYN:91.47% COMM\_TRANS:0.24% MVMUL:181400.00 MVMUL:8.10% VEC:0.00% MEM:3068.00 MEM:0.14% ratio:99.94% COMM Volume:110.19kB MEM Volume:0.25kB

47 MVMUL:768 MEM:1 LATENCY: 2202845.0 COMM\_SYN:92.19% COMM\_TRANS:0.26% MVMUL:161400.00 MVMUL:7.33% VEC:0.02% MEM:3080.00 MEM:0.14% ratio:99.94% COMM Volume:108.75kB MEM Volume:0.25kB

48 MVMUL:788 MEM:2 LATENCY: 2288433.0 COMM\_SYN:90.97% COMM\_TRANS:1.32% MVMUL:173200.00 MVMUL:7.57% VEC:0.00% MEM:3101.00 MEM:0.14% ratio:99.99% COMM Volume:169.06kB MEM Volume:0.31kB

49 MVMUL:832 MEM:1 LATENCY: 2326477.0 COMM\_SYN:91.50% COMM\_TRANS:0.83% MVMUL:174800.00 MVMUL:7.51% VEC:0.00% MEM:3104.00 MEM:0.13% ratio:99.98% COMM Volume:302.50kB MEM Volume:0.06kB

50 MVMUL:774 MEM:2 LATENCY: 2328608.0 COMM\_SYN:91.69% COMM\_TRANS:1.11% MVMUL:162600.00 MVMUL:6.98% VEC:0.03% MEM:3125.00 MEM:0.13% ratio:99.94% COMM Volume:247.81kB MEM Volume:0.31kB

51 MVMUL:765 MEM:2 LATENCY: 2336934.0 COMM\_SYN:92.37% COMM\_TRANS:0.55% MVMUL:160800.00 MVMUL:6.88% VEC:0.02% MEM:3135.00 MEM:0.13% ratio:99.95% COMM Volume:168.56kB MEM Volume:0.50kB

52 MVMUL:768 MEM:1 LATENCY: 2349936.0 COMM\_SYN:92.38% COMM\_TRANS:0.21% MVMUL:168600.00 MVMUL:7.17% VEC:0.02% MEM:3143.00 MEM:0.13% ratio:99.92% COMM Volume:109.25kB MEM Volume:0.25kB

53 MVMUL:768 MEM:1 LATENCY: 2363148.0 COMM\_SYN:92.49% COMM\_TRANS:0.20% MVMUL:168600.00 MVMUL:7.13% VEC:0.00% MEM:3159.00 MEM:0.13% ratio:99.95% COMM Volume:105.31kB MEM Volume:0.25kB

54 MVMUL:637 MEM:3 LATENCY: 2504493.0 COMM\_SYN:93.59% COMM\_TRANS:0.70% MVMUL:137000.00 MVMUL:5.47% VEC:0.03% MEM:3189.00 MEM:0.13% ratio:99.92% COMM Volume:179.19kB MEM Volume:0.72kB

55 MVMUL:402 MEM:2 LATENCY: 2562048.0 COMM\_SYN:96.11% COMM\_TRANS:0.20% MVMUL:88800.00 MVMUL:3.47% VEC:0.03% MEM:3219.00 MEM:0.13% ratio:99.93% COMM Volume:84.75kB MEM Volume:0.75kB

56 MVMUL:481 MEM:2 LATENCY: 2622935.0 COMM\_SYN:95.28% COMM\_TRANS:0.21% MVMUL:113000.00 MVMUL:4.31% VEC:0.01% MEM:3233.00 MEM:0.12% ratio:99.93% COMM Volume:99.75kB MEM Volume:0.47kB

57 MVMUL:582 MEM:4 LATENCY: 2738721.0 COMM\_SYN:94.09% COMM\_TRANS:0.52% MVMUL:139800.00 MVMUL:5.10% VEC:0.08% MEM:3279.00 MEM:0.12% ratio:99.91% COMM Volume:210.97kB MEM Volume:0.97kB

58 MVMUL:366 MEM:1 LATENCY: 2707104.0 COMM\_SYN:96.15% COMM\_TRANS:0.35% MVMUL:88200.00 MVMUL:3.26% VEC:0.02% MEM:3289.00 MEM:0.12% ratio:99.90% COMM Volume:58.22kB MEM Volume:0.38kB

59 MVMUL:429 MEM:2 LATENCY: 2738746.0 COMM\_SYN:95.59% COMM\_TRANS:0.35% MVMUL:108600.00 MVMUL:3.97% VEC:0.01% MEM:3311.00 MEM:0.12% ratio:100.03% COMM Volume:102.50kB MEM Volume:0.50kB

60 MVMUL:560 MEM:3 LATENCY: 2784317.0 COMM\_SYN:94.64% COMM\_TRANS:0.47% MVMUL:127600.00 MVMUL:4.58% VEC:0.08% MEM:3341.00 MEM:0.12% ratio:99.89% COMM Volume:213.62kB MEM Volume:1.12kB

61 MVMUL:416 MEM:1 LATENCY: 2784467.0 COMM\_SYN:96.09% COMM\_TRANS:0.12% MVMUL:98800.00 MVMUL:3.55% VEC:0.00% MEM:3353.00 MEM:0.12% ratio:99.88% COMM Volume:58.50kB MEM Volume:0.50kB

62 MVMUL:442 MEM:2 LATENCY: 2831666.0 COMM\_SYN:95.88% COMM\_TRANS:0.53% MVMUL:97400.00 MVMUL:3.44% VEC:0.00% MEM:3371.00 MEM:0.12% ratio:99.96% COMM Volume:66.62kB MEM Volume:0.62kB

63 MVMUL:728 MEM:2 LATENCY: 2874834.0 COMM\_SYN:93.96% COMM\_TRANS:0.45% MVMUL:154000.00 MVMUL:5.36% VEC:0.03% MEM:3385.00 MEM:0.12% ratio:99.92% COMM Volume:245.12kB MEM Volume:0.62kB

64 MVMUL:416 MEM:2 LATENCY: 2898168.0 COMM\_SYN:96.47% COMM\_TRANS:0.13% MVMUL:91600.00 MVMUL:3.16% VEC:0.04% MEM:3413.00 MEM:0.12% ratio:99.92% COMM Volume:97.38kB MEM Volume:1.00kB

65 MVMUL:416 MEM:1 LATENCY: 2898288.0 COMM\_SYN:96.23% COMM\_TRANS:0.09% MVMUL:98800.00 MVMUL:3.41% VEC:0.04% MEM:3429.00 MEM:0.12% ratio:99.88% COMM Volume:66.50kB MEM Volume:0.50kB

66 MVMUL:150 MEM:2 LATENCY: 2910113.0 COMM\_SYN:97.69% COMM\_TRANS:0.15% MVMUL:46800.00 MVMUL:1.61% VEC:0.13% MEM:3493.00 MEM:0.12% ratio:99.70% COMM Volume:110.56kB MEM Volume:2.45kB

67 MVMUL:96 MEM:1 LATENCY: 2912253.0 COMM\_SYN:97.98% COMM\_TRANS:0.19% MVMUL:34200.00 MVMUL:1.17% VEC:0.13% MEM:3539.00 MEM:0.12% ratio:99.60% COMM Volume:129.75kB MEM Volume:1.95kB

68 MVMUL:90 MEM:1 LATENCY: 2911455.0 COMM\_SYN:98.09% COMM\_TRANS:0.17% MVMUL:32400.00 MVMUL:1.11% VEC:0.12% MEM:3577.00 MEM:0.12% ratio:99.62% COMM Volume:121.89kB MEM Volume:1.95kB

69 MVMUL:88 MEM:1 LATENCY: 2912411.0 COMM\_SYN:98.14% COMM\_TRANS:0.16% MVMUL:31400.00 MVMUL:1.08% VEC:0.12% MEM:3619.00 MEM:0.12% ratio:99.63% COMM Volume:118.94kB MEM Volume:1.95kB

70 MVMUL:88 MEM:1 LATENCY: 2912569.0 COMM\_SYN:98.14% COMM\_TRANS:0.16% MVMUL:31400.00 MVMUL:1.08% VEC:0.12% MEM:3651.00 MEM:0.13% ratio:99.63% COMM Volume:118.94kB MEM Volume:1.95kB

71 MVMUL:88 MEM:1 LATENCY: 2914227.0 COMM\_SYN:98.14% COMM\_TRANS:0.16% MVMUL:31400.00 MVMUL:1.08% VEC:0.12% MEM:3683.00 MEM:0.13% ratio:99.63% COMM Volume:118.94kB MEM Volume:1.95kB

72 MVMUL:88 MEM:1 LATENCY: 2916367.0 COMM\_SYN:98.14% COMM\_TRANS:0.16% MVMUL:31400.00 MVMUL:1.08% VEC:0.12% MEM:3715.00 MEM:0.13% ratio:99.63% COMM Volume:118.94kB MEM Volume:1.95kB

73 MVMUL:66 MEM:1 LATENCY: 2917629.0 COMM\_SYN:98.53% COMM\_TRANS:0.09% MVMUL:26400.00 MVMUL:0.90% VEC:0.00% MEM:3747.00 MEM:0.13% ratio:99.65% COMM Volume:64.97kB MEM Volume:1.95kB

74 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

75 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

76 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

77 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

78 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

79 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

80 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

81 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

82 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

83 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

84 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

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89 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

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94 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

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100 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

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143 MVMUL:0 MEM:0 LATENCY: 0.0 COMM\_SYN:-nan% COMM\_TRANS:-nan% MVMUL:0.00 MVMUL:-nan% VEC:-nan% MEM:0.00 MEM:-nan% ratio:-nan% COMM Volume:0.00kB MEM Volume:0.00kB

practical (ns)

2971658.00

IG average latency (ns)

60646.08

MVMUL (#)

50962

VVADD (#)

51130

COMM (#)

144198

Volume (bytes)

9879328

Cycles (ns)

1108079

MEM (#)

37778

Volume (bytes)

482304

Cycles (ns)

247396

HT Volume (bytes)

0

Cycles (ns)

0

============================= OVERALL TIME =============================

15.15s

real 0m16.789s

user 0m11.962s

sys 0m4.367s