Analyzer Report {Loop Blocking}

This report generated by Convolutional Neural Network Inference Analyzer (CNN-IA) to summarize the analysis needed to reach the optimal loop blocking for mlp_fc3_batch16 using restricted schedule space.

Memory Architecture :

	L0	L1	L2	L3
Capacity	4	16	65536	536870912
Access cost	0	0	6	200
Static cost	0	0	0	0
Parallel count	1	256	1	1
Parallel mode	0	1	0	0
Parallel cost	0	2	0	0

Precision	:	16
Minimum utilization	:	0.0%
Outputs can be buffered by mac	:	0
Replication to improve utilization	:	True

Glossary :

- Memory Levels : (L0, L1, L2, L3)
  The smallest index the nearest to CPU.

- Loop Notations : (FX, FY, OX, OY, OC, IC, ON)

FX	:	FILTER WIDTH
FY	:	FILTER HEIGHT
OX	:	OUTPUT WIDTH
OY	:	OUTPUT HEIGHT
OC	:	OUTPUT CHANNEL
IC	:	INPUT CHANNEL
ON	:	BATCH

Map Configuration

Loop Blocking (factors):

	L0	L1	L2	L3
FX	1	**3**	1	1
FY	1	**1**	1	1
OX	1	1	1	1
OY	1	**1**	1	1
OC	1	2	1	50
IC	1	1	250	2
ON	1	2	1	8

Loop Partitioning (units):

	L0	L1	L2	L3
FX	1	**1**	1	1
FY	1	**3**	1	1
OX	1	1	1	1
OY	1	**13**	1	1
OC	1	**4**	1	1
IC	1	1	1	1
ON	1	1	1	1

Loop Ordering (from the innermost):

	L0	L1	L2	L3
FX	6	**0**	6	6
FY	6	**1**	6	6
OX	6	6	6	6
OY	6	**3**	6	6
OC	6	2	6	0
IC	6	6	0	1
ON	6	4	6	2

(Hinted schedule configurations are in green)

Schedule

The Best format for schedule found is :

MEM - L3:

```
for ( ON, 8b, 1p )
    for ( IC, 2b, 1p )
        for ( OC, 50b, 1p )
```

MEM - L2:

```
for ( IC, 250b, 1p )
```

MEM - L1:

```
for ( ON, 2b, 1p )
    for ( OY, 1b, 13p )
        for ( OC, 2b, 4p )
            for ( FY, 1b, 3p )
                for ( FX, 3b, 1p )
spatially unrolled loops: (FX)(FY)(OY)(OC)
```

MEM - L0:

(Hinted loop unrollments are in green)

Cost

MEM	ENERGY (PJ)
L0	99950.0
L1	2139800.0
L1-PARA	35648000.0
L2	8472000.0
TOTAL	46359750.0

- L3 memory was not checked for invalid underutilized.