# Analyzer Report {Meomry Capcity}

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

## Memory Architecture :

| | L0 | L1 | L2 |
|---|---|---|---|
| **Capacity** | 256 | 131072 | 536870912 |
| **Access cost** | 0 | 7 | 200 |
| **Static cost** | 0 | 0 | 0 |
| **Parallel count** | 256 | 1 | 1 |
| **Parallel mode** | 1 | 0 | 0 |
| **Parallel cost** | 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 )
  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 |

# Exploration Table

| L0-SIZE | L0-COST | L1-SIZE | L1-COST | L2-SIZE | L2-COST | TOTAL |
|---|---|---|---|---|---|---|
| 16.0 | 0.05 | 16384.0 | 3.84 | 536870912.0 | 200.0 | 70842440.0 |
| 32.0 | 0.1 | 16384.0 | 3.84 | 536870912.0 | 200.0 | 57562240.0 |
| 64.0 | 0.2 | 16384.0 | 3.84 | 536870912.0 | 200.0 | 50153840.0 |
| 128.0 | 0.4 | 16384.0 | 3.84 | 536870912.0 | 200.0 | 48412240.0 |
| 256.0 | 0.8 | 16384.0 | 3.84 | 536870912.0 | 200.0 | 50497040.0 |
| 16.0 | 0.05 | 32768.0 | 4.8 | 536870912.0 | 200.0 | 74990600.0 |
| 32.0 | 0.1 | 32768.0 | 4.8 | 536870912.0 | 200.0 | 59790400.0 |
| 64.0 | 0.2 | 32768.0 | 4.8 | 536870912.0 | 200.0 | 51230000.0 |
| 128.0 | 0.4 | 32768.0 | 4.8 | 536870912.0 | 200.0 | 49373200.0 |
| 256.0 | 0.8 | 32768.0 | 4.8 | 536870912.0 | 200.0 | 49451600.0 |
| 16.0 | 0.05 | 65536.0 | 6.0 | 536870912.0 | 200.0 | 73775800.0 |
| 32.0 | 0.1 | 65536.0 | 6.0 | 536870912.0 | 200.0 | 56175600.0 |
| 64.0 | 0.2 | 65536.0 | 6.0 | 536870912.0 | 200.0 | 47975200.0 |
| 128.0 | 0.4 | 65536.0 | 6.0 | 536870912.0 | 200.0 | 44374400.0 |
| 256.0 | 0.8 | 65536.0 | 6.0 | 536870912.0 | 200.0 | 43572800.0 |
| 16.0 | 0.05 | 131072.0 | 7.5 | 536870912.0 | 200.0 | 75549800.0 |
| 32.0 | 0.1 | 131072.0 | 7.5 | 536870912.0 | 200.0 | 59199600.0 |
| 64.0 | 0.2 | 131072.0 | 7.5 | 536870912.0 | 200.0 | 45324200.0 |
| 128.0 | 0.4 | 131072.0 | 7.5 | 536870912.0 | 200.0 | 42735900.0 |
| 256.0 | 0.8 | 131072.0 | 7.5 | 536870912.0 | 200.0 | 42154300.0 |

# Optimal Cost

[ 42154300.0 pJ ]

| MEM: | L0 | L1 | L2 |
|---|---|---|---|
| SIZE: | 256.0 | 131072.0 | 536870912.0 |
| COST: | 0.8 | 7.5 | 200.0 |