

CO460 - Assignment 2

1. (a) There are 32 sets per bank.
- (b) Default Vdd = 1V
- (c) Access Time depends on Cycle Time, Precharge Delay, Cache Capacity, Block Size, Associativity, Technology, Number of ports and banks.

Access Time : 1.17936 ns

- (d) Data array consumed the most dynamic power. The values are :

Data Array : 0.0227519 nJ

Tag Array : 0.000396327 nJ

- Data array consumed the most leakage power. The values are :

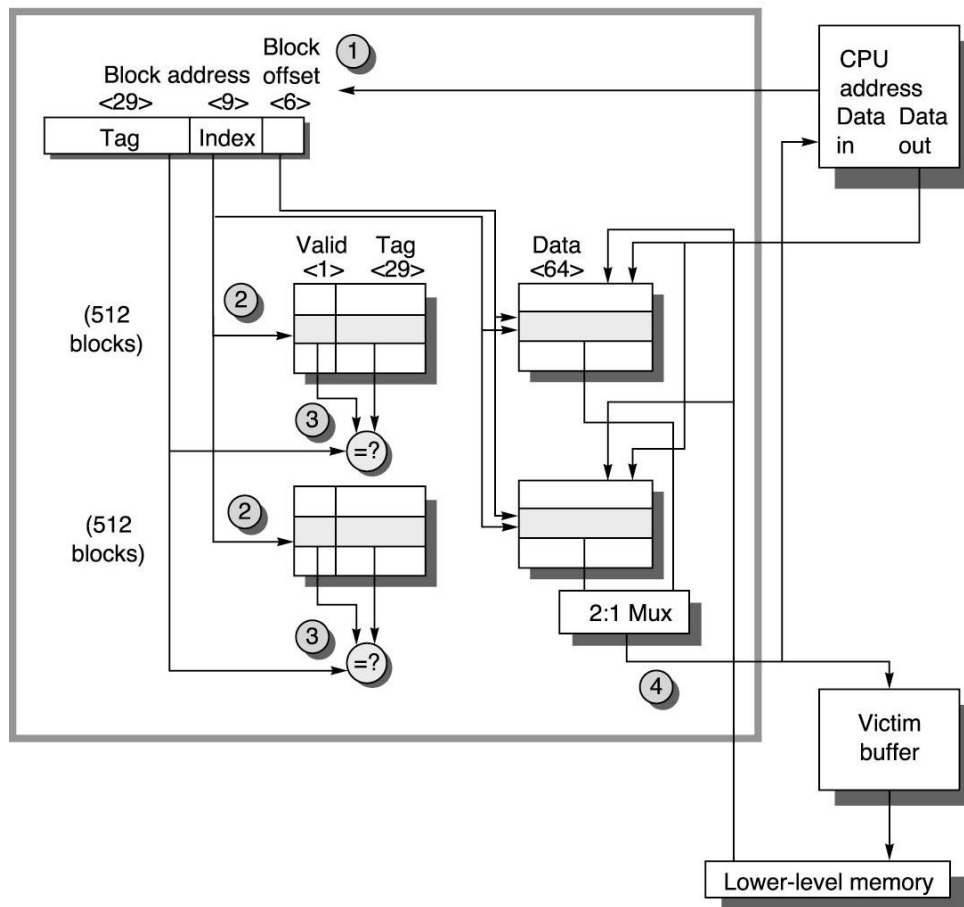
Data Array : 0.558021 mW

Tag Array : 0.125721 mW

- (e) Area of :

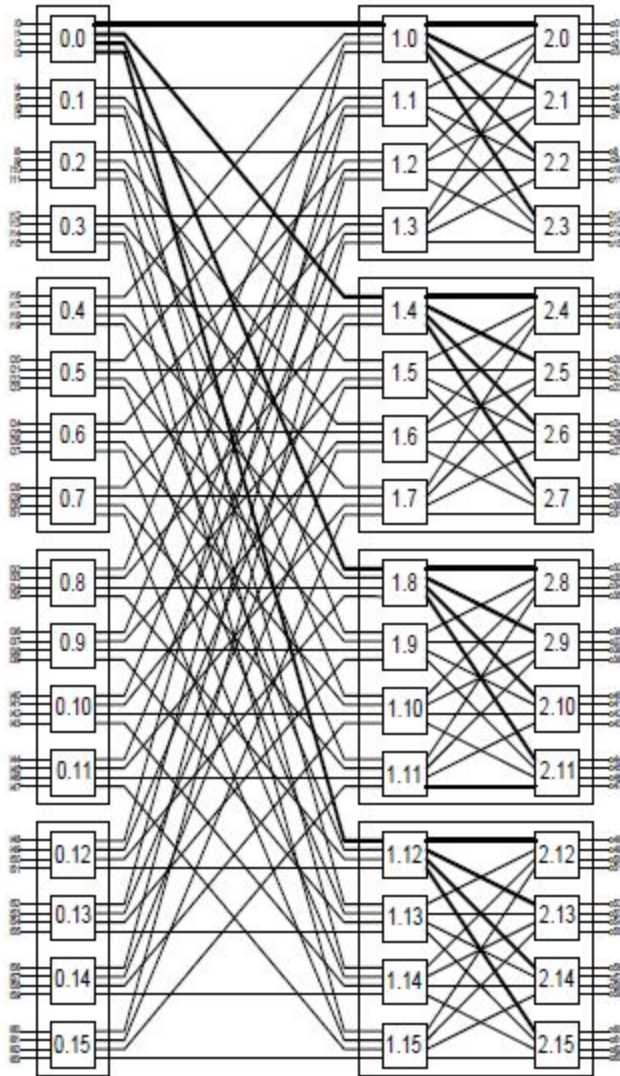
Data Array : 0.0734604 mm²

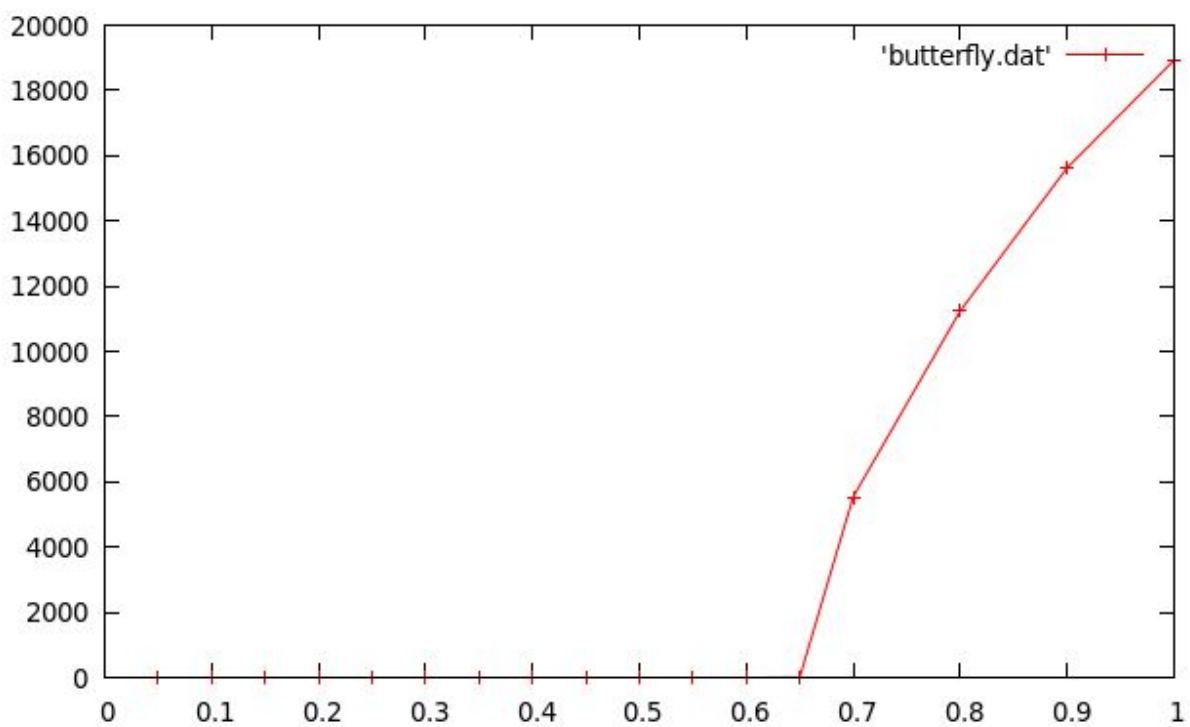
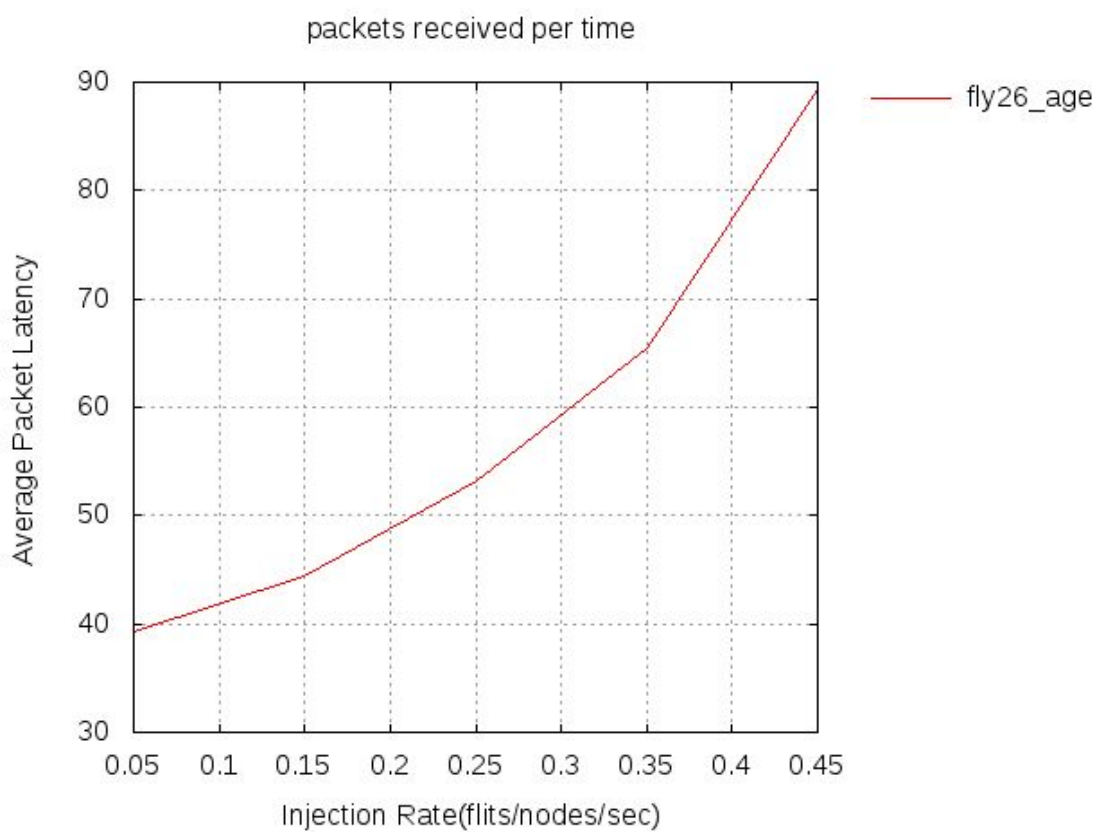
Tag Array : 0.00381064 mm²



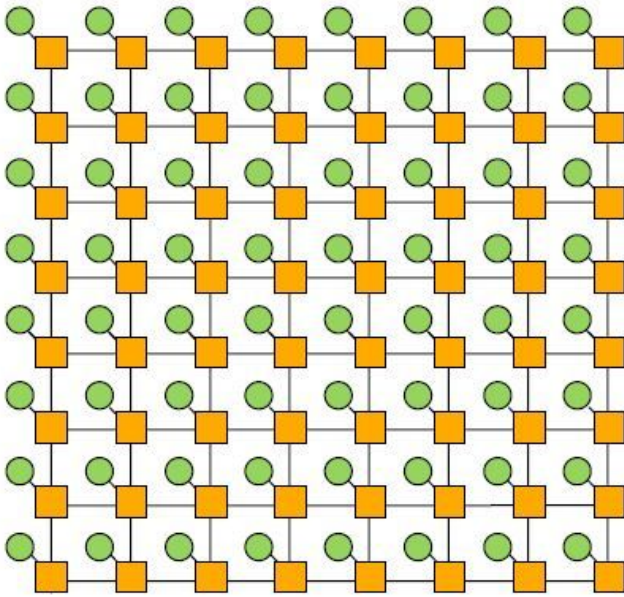
Results are mentioned in the q1_results.txt file.

3. (a) 64-node Butterfly Network

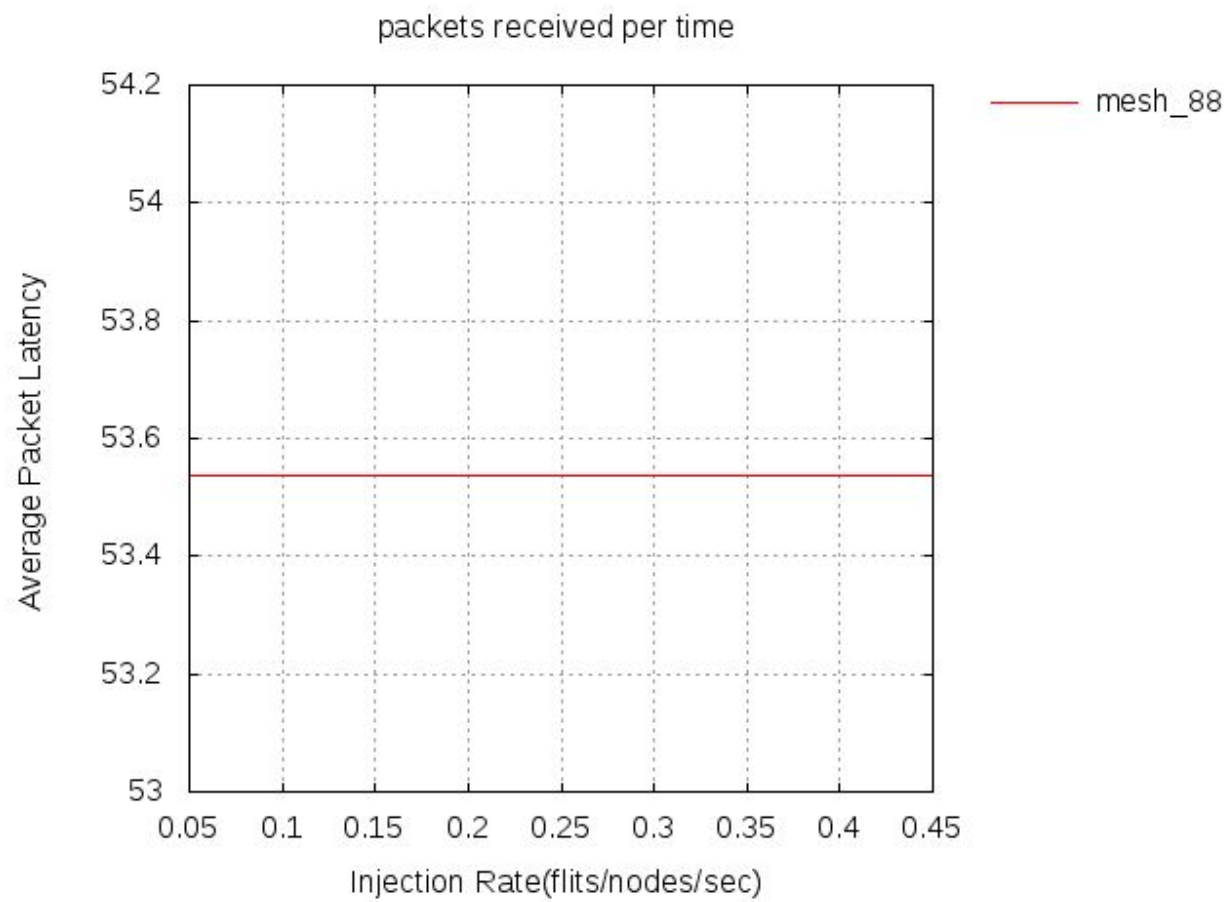


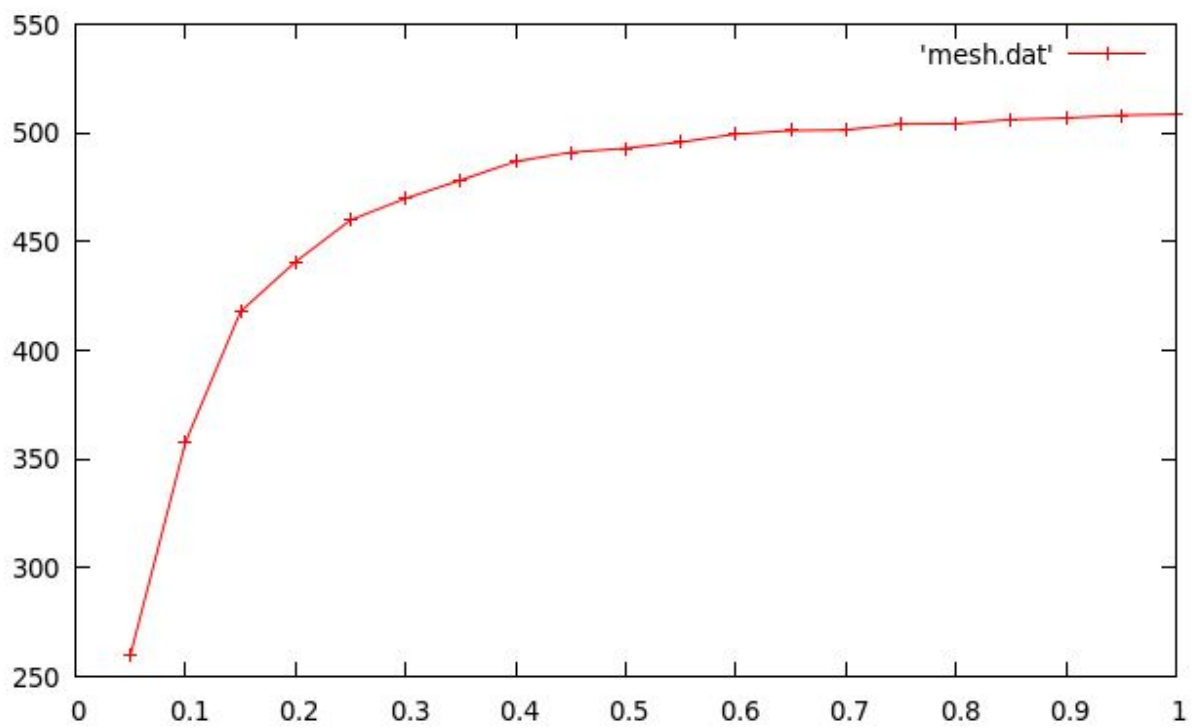


(b) 8X8 2D Mesh

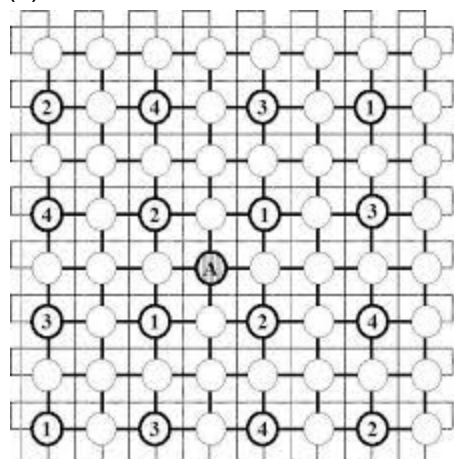


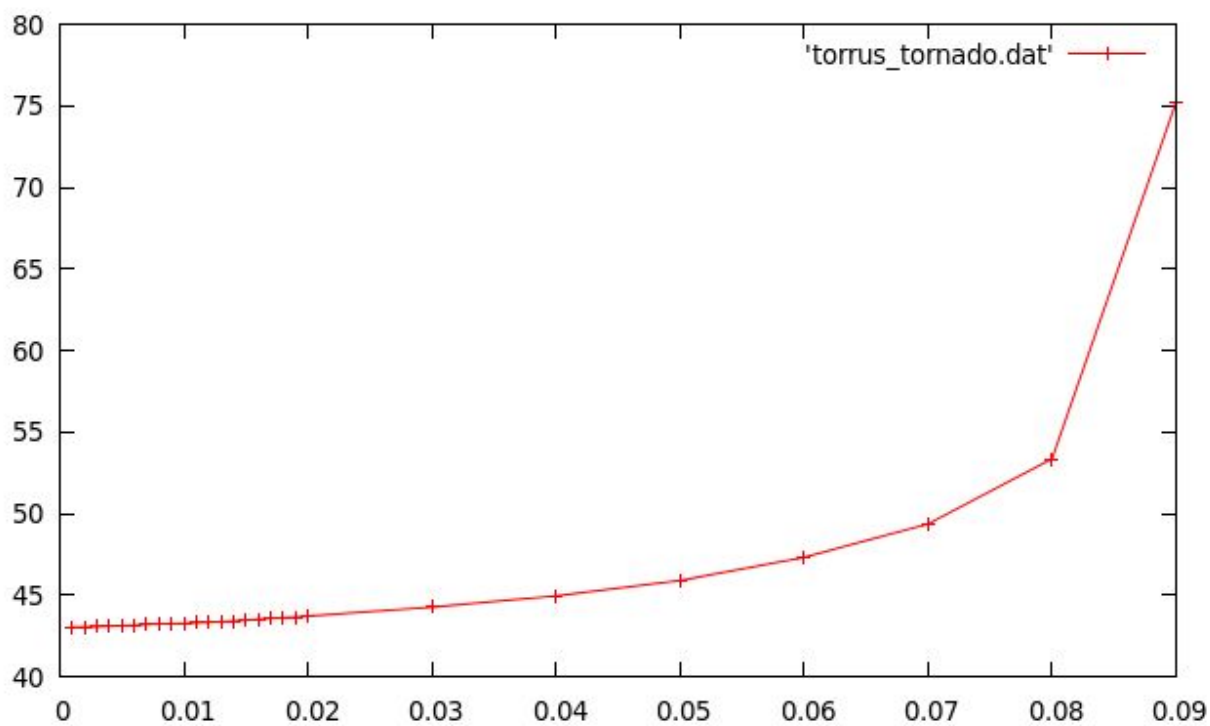
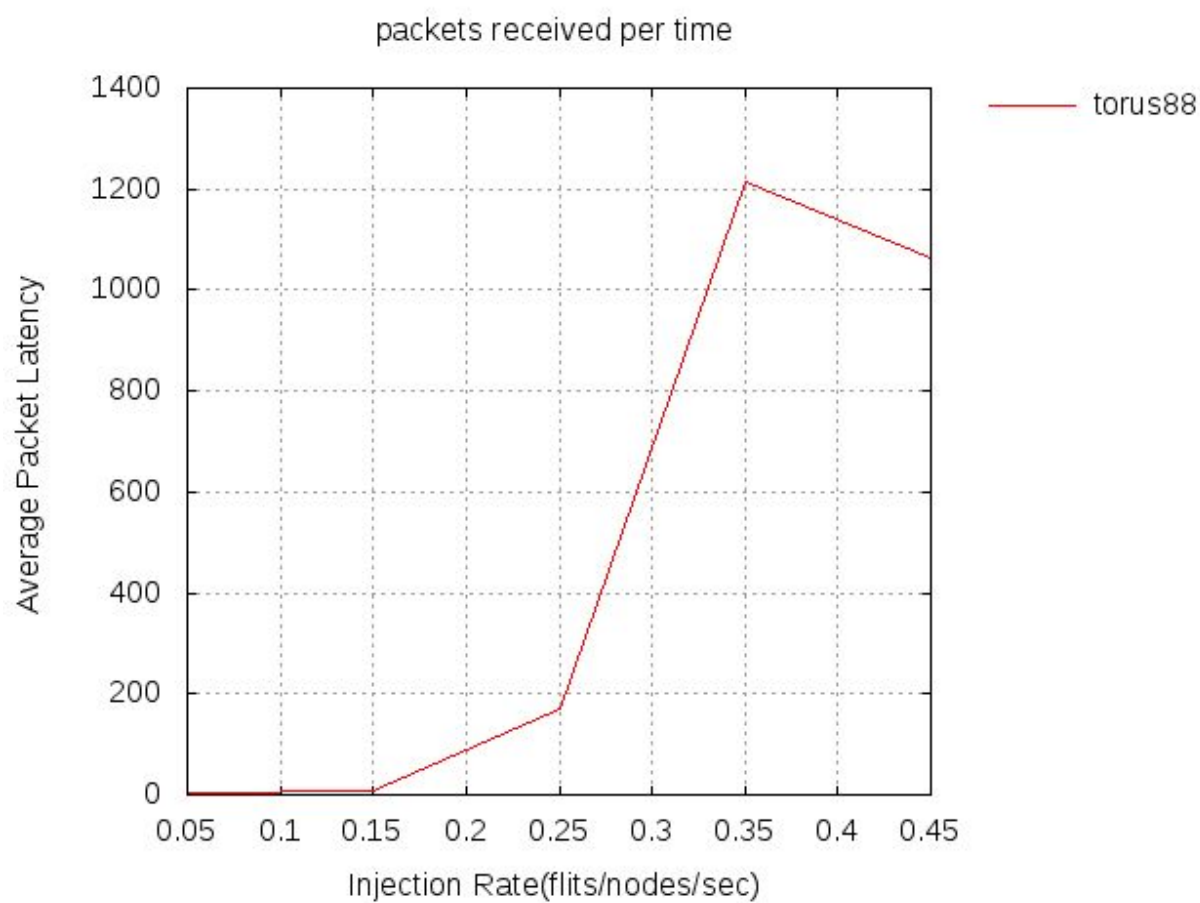
2D Mesh



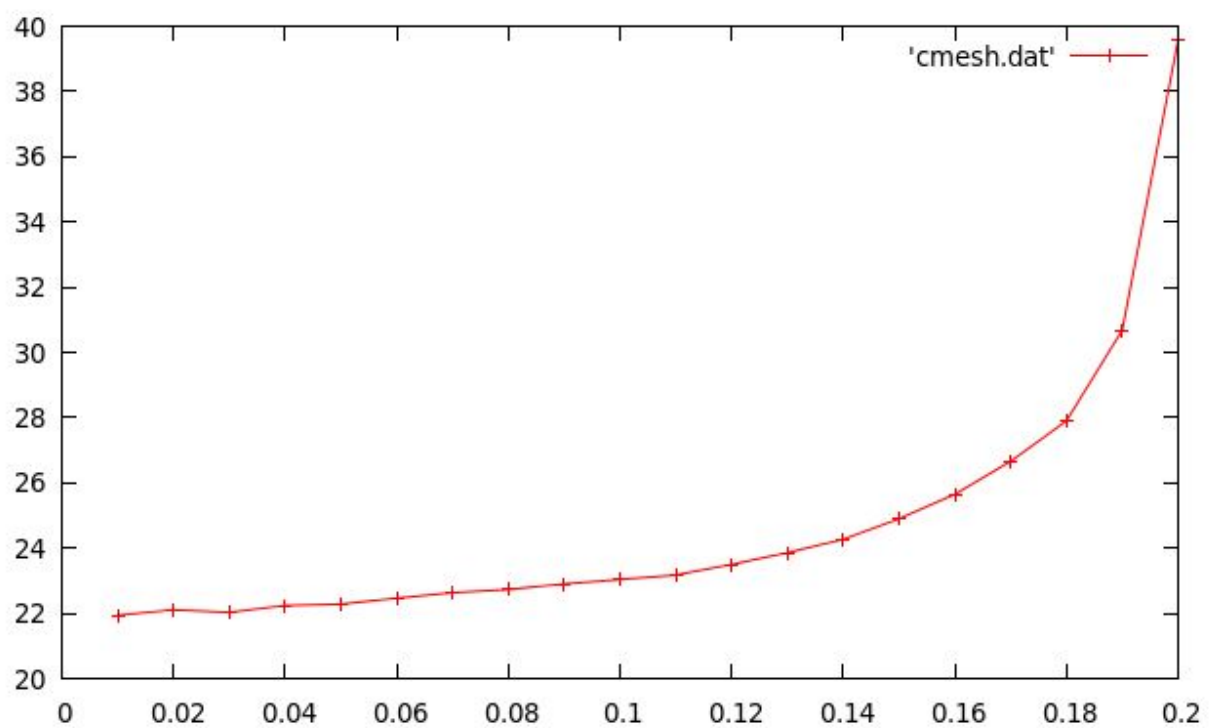
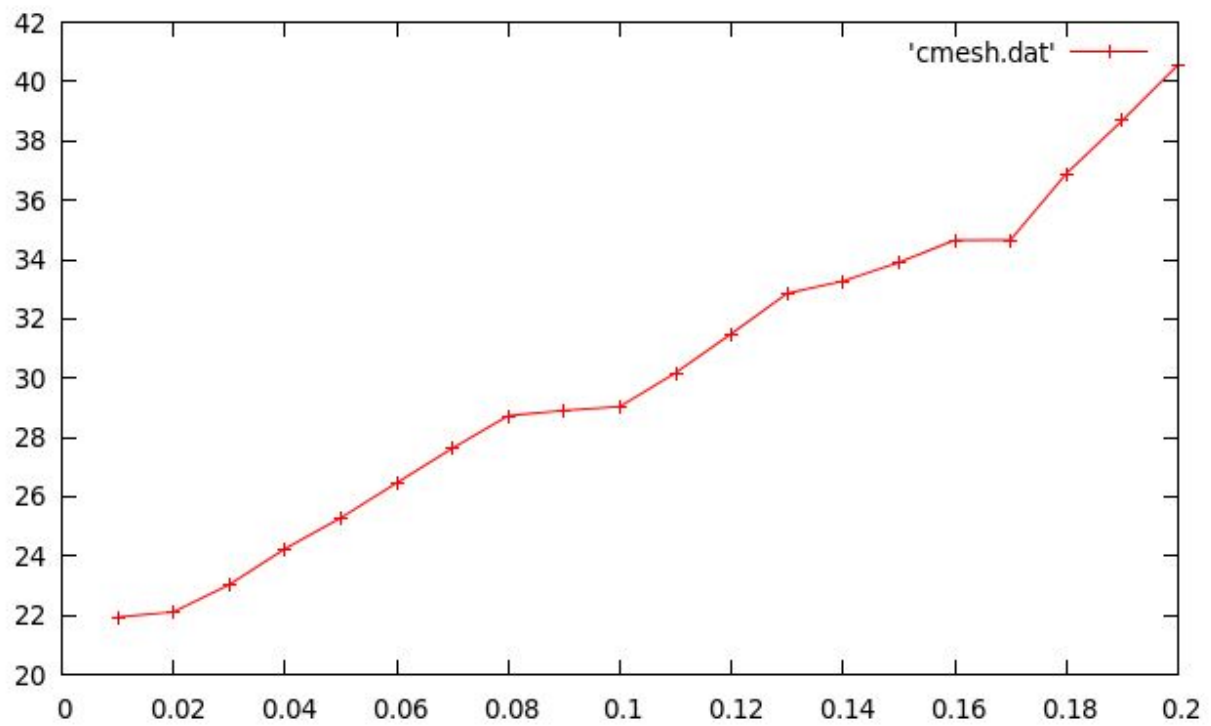


(c) 8X8 2D Torus





(d) 64 Node Connected CMesh

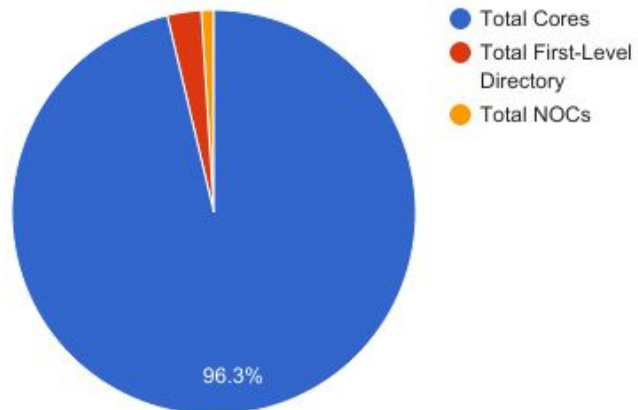


4. Phone Model : Lenovo A690+

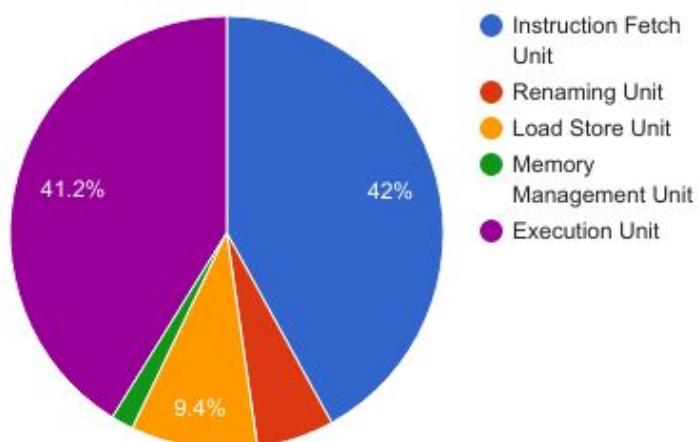
Processor : ARM A9

The specifications mentioned in the ProcessDescription files match the phone processor.
Results are mentioned in the q4_results.txt file.

Individual Component Power Consumption

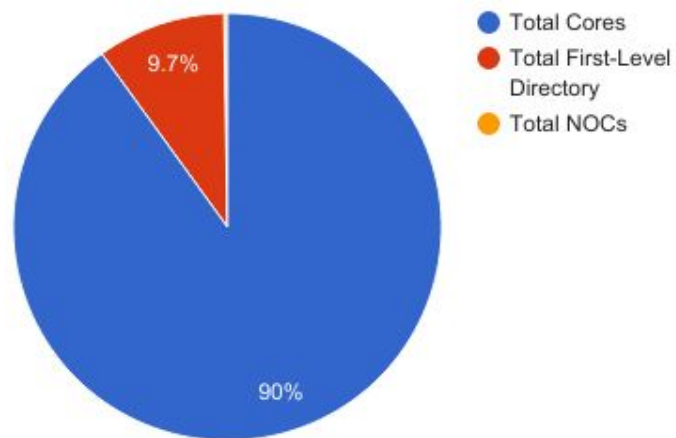


Entire Processor

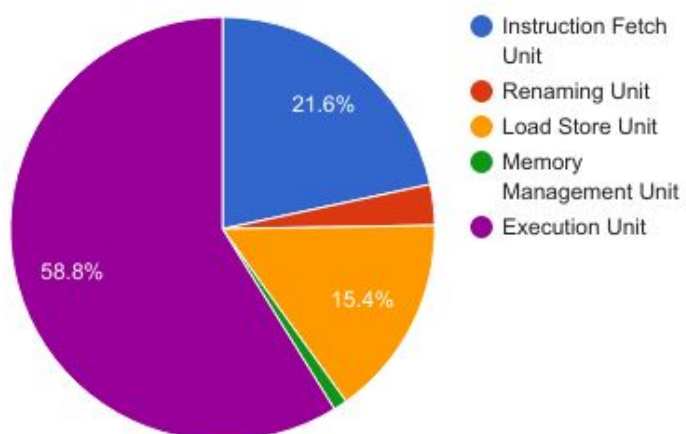


Power Consumption Distribution of Core

Individual Component Area Consumption



Entire Processor



Area Distribution of Core

5.

(a) For default values

Power Reading = 13.013

Area Reading = 44054.6

(b) Router with 45nm, 0.9nm, HVT

Power Reading = 11.5367

Area Reading = 28304.8

(c) Router with 6 i/p and o/p ports, 128 bit flit width

Power Reading = 41.113

Area Reading = 136373