CACHE PARAMETERS SPECIFICATIONS

AN EXAMPLE :

L1 cache size : 64 bytes
L1 cache set associativity : 2 blocks/set
L1 cache block size : 4 words/block
L2 cache size : 256 bytes
L2 cache set associativity : 4 blocks/set
L2 cache block size : 8 words/block
L1 cache latency : 2 cycles
L2 cache latency : 4 cycles
Memory cache latency : 10 cycles

- L2 cache latency includes L1 cache access time (a miss) and L2 cache access (a hit)
- L2 latency (L1 miss + L2 hit)
- Memory access latency (L1 miss + L2miss + memory access)
  i.e., in the above example if it is a L1 miss and L2 hit the time taken to service the data/ access the data is 4 cycles, but not 2 cycles + 4 cycles
- Similarly on a cache miss the main memory is accessed for the data and the time taken to service the data access is memory access latency (10 cycles as per the above example)

THE SPECIFICATIONS

- **Cache size** should be specified "in bytes" , should be in powers of 2
- **Set Associativity** is number of "blocks per set",should be in powers of 2, Example :
  for direct map set associativity = 1
  for 2 way associative = 2

for fully associative = cache size(in bytes) / (Block size(in bytes))
This value should be calculated and inputted by the user

- **Cache Block size** should be inputted in "words / block " (where 1 word = 4 bytes) , should be in powers of 2 can't be less than 4
- L2 cache block size can't be less than L1 cache block size
- Latencies should be in cycles (Memory latency > L2 cache access latency > L1 cache access latency)
- Addresses are assumed to be 32 bits wide and for organising into cache addresses are divided into tag,index and offset
- Number of sets is calculated as cache size(in bytes)/(set associativity * (block size(in bytes)))
- Number of bits in index = ln(number of sets)/ln(2)
- Number of bits in offset = ln(block size (in words))/ln(2)

From the parameters file only the first 9 integer occurrences are extracted and rest of the text is ignored

It's better to have only the input values one per line in the parameters file. They should be in the order shown in the above

An example is given at the beginning.