CSE 420

Relationship between Cache Size, Associativity, Block size & Index?

\[ 2^{\text{Index}} = \frac{\text{Cache Size}}{\text{Block Size} \times \text{Set Associativity}} \]

E.g. 64K Cache, 2-way set associativity, Block size of 64 byte Index?

\[ \frac{64K}{64 \times 2} = 512 \quad \log_2(512) = 9 \]
Where is the index field in the address?
Avg. access time = Hit time $L_1$ + Overhead

Miss rate $L_1 \times \left( \frac{\text{Hit time } L_2 + \text{Miss rate } L_2}{\text{Miss penalty } L_2} \right)$

CPU Execution Time = $\frac{IC \times CPI \times CCT}{1}$

$CPI_{execution} + \frac{\text{Memory stall clock cycles}}{\text{Instr.}}$ = $\frac{\text{Misses/Instr.}}{\text{Miss penalty}}$