Eshetu Wekjira

Lab 09 - Cache in C on Actual Hardware

Task1

Speculations

I did not see the difference between max1 and max2 functions except the order of for-loop. Even if the variables have the same values in both parts, it has a different sequence of for-loop structure; it fetches either from cache or main memory. The amount of computation that the two parts do is the same. The two processes take different amounts of time due to varying orders of for-loops fetches. I think that the max1 function is faster than the max2 function.

Results

When I ran the code, I got the same values and different execution times for both functions. That code runs that way because the procedure fetching in the main memory needs more time than cache memory, and the instructions are fetched from the cache memory for the max1 function that why the process for max1 is faster than max2. CPU speeds are pretty high compared to the access time of the main memory. Thus, the processor performance is limited by the slow speed of the main memory. A buffer or cache is used to speed up the fetching of instructions to the CPU. Depending on that concept, the max1 function fetches instructions from the cache faster than the max2 function. Cache memory thus makes main memory appear much faster and larger than it is. It improves the memory transfer rates and thus raises the effective processor speed.