**Speed comparison**

We compared CPU and GPU execution times on calculating the dot product - summing the elements in the given vector. We collected data, and visualized it on the following graphs.

First we analyzed the execution time of the CPU.
On the graph we can obviously see increasing execution time with increasing number of elements with constant slope of the curve.

CPU execution time [s]

2^X
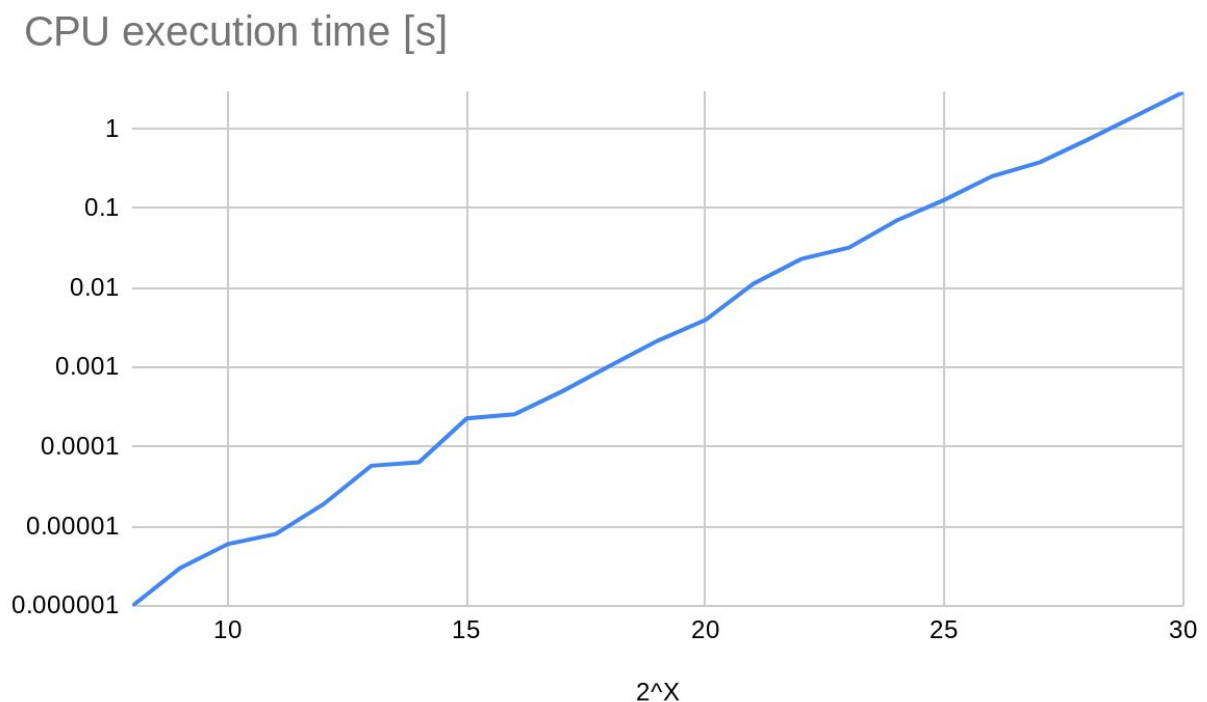
Next, we analyzed the execution time of our GPU.
In comparison to the CPU, the GPU curve is approximately a flat line for the small number of elements. Here we can see the load of implementing the operation on the GPU device. Calculating the sum of the vector on the GPU device is not economic for smaller numbers of elements.
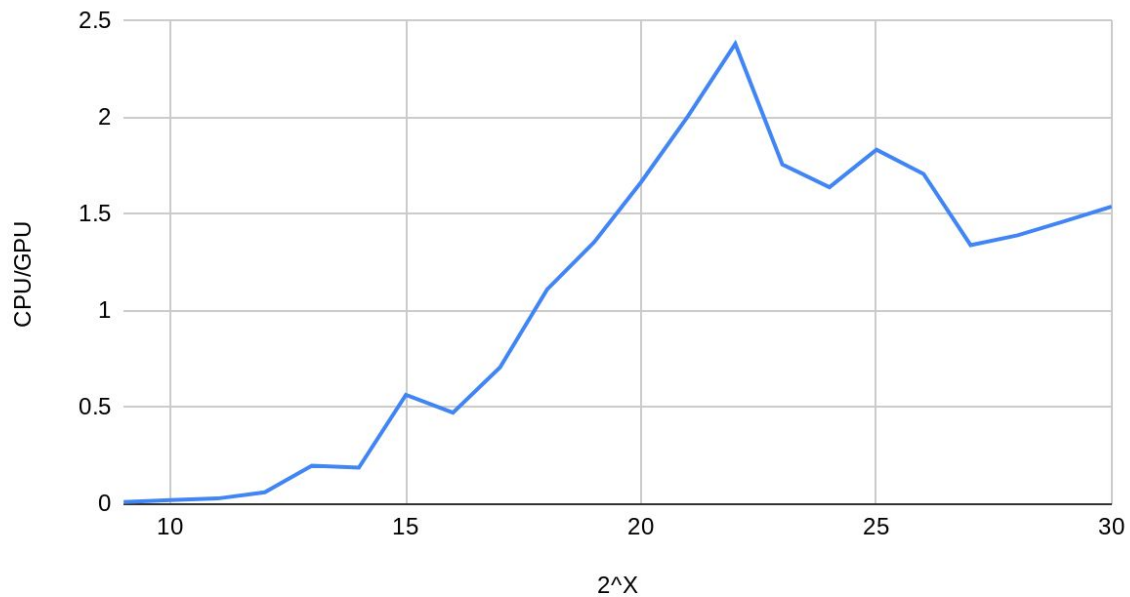
GPU execution time [s]
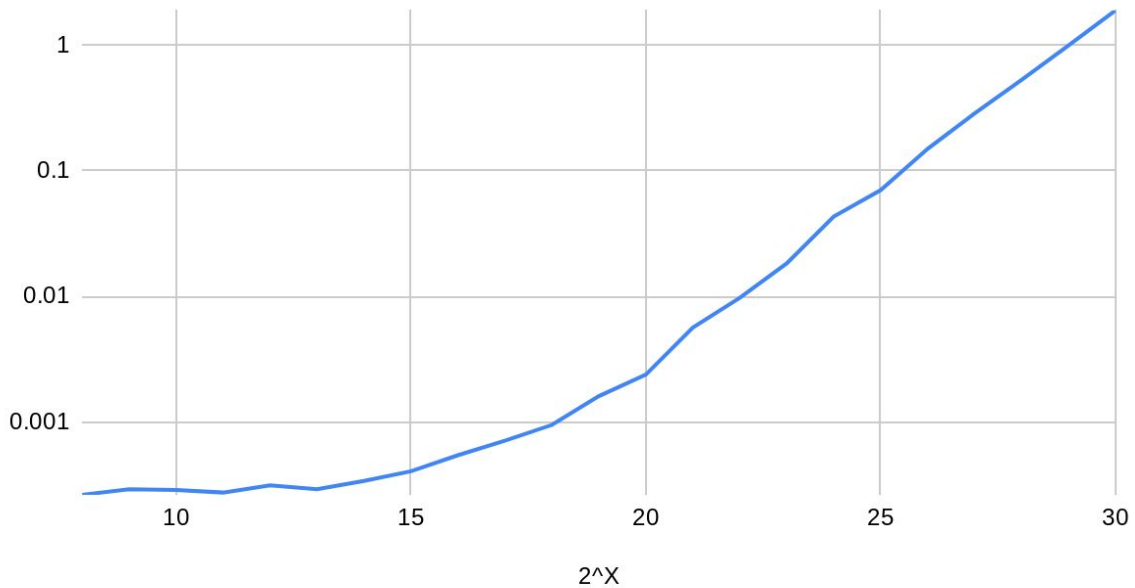
Later we compare execution times side by side.
At the beginning we visualized the ratio of the two periods - for CPU and GPU.
From the graph we can see that the speed of the GPU calculation is more supreme the greater the number of elements in the vector.
However the supremacy has it's peak for 2^22 elements in the vectors, however after that number the advantage of the GPU is still significant.

CPU execution time / GPU execution time

In the last graph we again compared the execution times.
In this graph we can clearly see the place after which we can gain   some time by computing the vector sum on the GPU.
This happens when the vector has 2^18 elements, and the time consumed on the CPU side takes approximately 0.001 s.

CPU and GPU execution time [s]