- In week 39 we will discuss "Sources of Parallelism and Locality in Simulation" and "Sources of Parallelism and Locality in Simulation - Part 2: PDEs", and if time allows, "Shared Memory Programming: Threads and OpenMP" (Chapter 7 in the course book covers that topic, but I will not strictly follow the book).

- In week 38 you got a brief introduction to Streaming SIMD extensions (SSE). Here is a simple example code to compute a inner product of two vectors x and y, the code presented in the lecture can be found in blackboard:

```
#include <pmmintrin.h>
 int main()
{
    int k,i;
    k = 100;
    float x[k]; float y[k]; // vectors of length k
    __m128 X, Y;
    // 128-bit values
    __m128 acc = _mm_setzero_ps(); // set to (0, 0, 0, 0)
    float inner_prod, temp[4];
    for(i = 0; i < k - 4; i += 4) {
        X = _mm_load_ps(&x[i]); // load chunk of 4 floats
        Y = _mm_load_ps(y + i); // alternate way, pointer arithmetic
        acc = _mm_add_ps(acc, _mm_mul_ps(X, Y));
    }
    _mm_store_ps(&temp[0], acc); // store acc into an array of floats
    inner_prod = temp[0] + temp[1] + temp[2] + temp[3];
    // add the remaining values
    for(; i < k; i++)
        inner_prod += x[i] * y[i];
}
```