**Documentation Lab 7 MPI**

**System:**

-CPU: 6 cores, 6 threads

-RAM: 16GB

-64bit

**Algorithms:**

**1.Classic polynomial multiplication:**

-complexity: O(n^2)

-each coefficient of the first polynomial is multiplied with each of the second one, then you add the coefficients with the same exponent

**2.Karatsuba multiplication:**

-complexity: O(n^log3)

-uses divide and conquer approach to multiply to polynomials

**Tests:**

|  |  |  |
| --- | --- | --- |
| **Size(Nr. Of coefficients)** | **Regular** | **Karatsuba** |
| **5** | **15ms** | **3ms** |
| **50** | **17ms** | **4ms** |
| **100** | **19ms** | **4ms** |
| **500** | **42ms** | **25ms** |