

A method for accelerated computation of the Riemann zeta function on the complex plane

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Abstract. The paper extends the study of efficient algorithms for the computation of the Riemann zeta function on the complex plane. It is dedicated to numerical aspects of the implementation of the algorithm. Since the straightforward computation of the coefficients of the method is difficult and time-consuming, we propose a new perspective, taking into account the asymptotic normality of the coefficients. We show that the presented approach accelerates computations of the Riemann zeta function. To increase the performance, we propose several modifications of the algorithm for the Riemann zeta function. We compare both ordinary and parallel versions and evaluate accuracy, efficiency, and speedup.

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