

# PRAND: GPU accelerated parallel random number generation library

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The library PRAND for pseudorandom number generation for modern CPUs and GPUs is presented. It contains both single-threaded and multi-threaded realizations of a number of modern and most reliable generators recently proposed and studied in [1,2,3,4,5] and the efficient SIMD realizations proposed in [6,7]. One of the useful features for using PRAND in parallel simulations is the ability to initialize up to  $10^{19}$  independent streams. Using massive parallelism of modern GPUs and SIMD parallelism of modern CPUs substantially improves performance of the generators.

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