A backward heuristic algorithm for two-term multiple recursive random number generators

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Abstract

This paper considers the problem of searching for the maximum spectral value in a full period two-term kth-order multiple recursive generator with the unrestricted multipliers. The maximum spectral value with the double precision floating-point restricted multipliers can serve as an initial threshold spectral value. Based on equivalence properties of full period and spectral test, a backward heuristic algorithm with the threshold spectral value for efficiently calculating spectral value and checking full period is presented and is suitable for the parallel computations.

1.   Introduction

A *kth-order multiple recursive generator* (kMRG) is defined as follows: