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Evaluating linear recursive filters using novel data formats for dense matrices.

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Summary: The aim of this contribution is to show that the performance of the recently developed high performance algorithm for evaluating linear recursive filters can be increased by using new generalized data structures for dense matrices introduced by F. G. Gustavson. The new implementation is based on vectorized algorithms for banded triangular Toeplitz matrix – vector multiplication and the algorithm for solving linear recurrence systems with constant coefficients. The results of experiments performed on Intel Itanium 2 and Cray X1 are also presented and discussed.

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