# *Implementation of a High-Speed MIMO Soft-Output Symbol Detector for Software Defined Radio*

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## Abstract

This paper presents a programmable MMSE soft-output MIMO symbol detector that supports 600 Mbps data rate defined in 802.11n. The detector is implemented using a multi-core floating-point processor and configurable soft-bit demapper. Owing to the dynamic range supplied by the floating-point SIMD datapath, special algorithms can be adopted to reduce the computational latency of channel processing with sufficient numerical stability for large channel matrices. When compared to several existing fixed-functional solutions, the detector proposed in this paper is smaller and faster. More important, it is programmable and configurable so that it can support various MIMO transmission schemes defined by different standards.