Abstract

In the high speed wireless communication system most commonly used linear detector is a linear minimum mean square error (LMMSE) due to its low complexity. In this paper the decoder is designed for the MIMO-OFDM based system considering the mobile terminal downlink scenario. This MIMO decoder demands the complex matrix inversion. To invert large matrices, systolic array based QR decomposition (QRD) is usually used. However, the matrices involved in MIMO-OFDM based mobile terminal is generally small, hence QRD is not necessarily efficient. In this paper a proposed complex matrix inversion method is Alamouti blockwise analytic matrix inversion (ABAMI), which achieves good trade-off between performance and silicon area compared to the prior work. This matrix inversion method used to implement LMMSE decoder makes it more flexible and faster.

References


Index Terms

Computer Science Circuits and Systems

Keywords

VLSI, MIMO-OFDM, STBC