

The implementation and improvement of list decoding of reed-solomon codes = 里德所羅門碼之條列式解碼法則的實現與改善

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摘要

里德所羅門碼是一種眾所皆知擁有很強大解碼能力的解碼法則，但在幾年前由Madhu Sudan所提出的創新解碼觀念是可能超越原本的解碼限制，幾年後Ron M. Roth和Gitit Ruckenstein依照了Madhu Sudan的觀念提出了改進解碼法則。本篇論文就是以上述這幾位先進的所提出的條列式解碼法則作為基礎。條列式解碼法則是一個比較複雜的解碼器，所以在本次研究中將會提出解碼程序的修正以及部份法則的簡化，並且利用VHDL程式語言以及C程式語言來實現改善過後的解碼器。最後，在將簡化後以及原本的解碼器做比較和分析，以表現出改善後的解碼器的效率提升。

關鍵詞：條列式解碼法;內插法;因式分解

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