

RAM BASED KEY EQUATION SOLVER APPARATUS

ABSTRACT

A circuit for calculating coefficients of an error locator polynomial and coefficients of an error evaluator polynomial for correcting errors in a Reed-Solomon encoded datastream, comprising a syndrome generator (112) outputting syndromes of the datastream. The circuit is coupled to the syndrome generator (112) and receives the syndromes. The circuit (120) comprises an arithmetic unit iteratively generating intermediate and final values of the coefficients of an error locator polynomial and the coefficients of an error evaluator polynomial; a random access memory (204), storing the intermediate and final values of the coefficients of an error locator polynomial and the coefficients of an error evaluator polynomial; and a control unit (228), controlling the arithmetic unit and the memory and detecting when the computation of the coefficients of an error locator polynomial and the coefficients of an error evaluator polynomial has been completed.

Fig 1