

MEMORY DEVICE FAIL SUMMARY DATA REDUCTION FOR IMPROVED REDUNDANCY ANALYSIS

Abstract

A method and apparatus is presented for extracting sparse failure information from an error data image of a memory device by scanning the error data image in only two passes. During a first scan pass, the error data image is scanned for failures in a first set of memory cell groups organized along a first dimension, keeping track of failures seen in each of the respective memory cell groups in the first set, and keeping track of and designating as a must-repair memory cell group any memory cell group whose respective number of failures equals or exceeds a first maximum failure threshold. During a second scan pass, the error data image is scanned for failures in a second set of memory cell groups organized along a second dimension, keeping track of failures seen in each of the respective memory cell groups in the second set, and keeping track of and designating as a must-repair memory cell group any memory cell group whose respective number of failures equals or exceeds a second maximum failure threshold; and generating tag images containing only sparse failure information.

Figure 3