

ABSTRACT

A method of controlling repair of a volatile memory device, includes, performing a patrol read operation repeatedly to provide error position information of errors included in read data from a volatile memory device, generating accumulated error information by accumulating the error position information based on the patrol read operation performed repeatedly, determining error attribute based on the accumulated error information, the error attribute indicating correlation between the errors and a structure of the volatile memory device, and performing a runtime repair operation with respect to the volatile memory device based on the accumulated error information and the error attribute. The errors may be managed efficiently to prevent failure of the volatile memory device, and thus performance and lifetime of the volatile memory device and the storage device may be enhanced.

FIG. 1