ABSTRACT

The present disclosure provides storage devices and methods for operating the same. In some embodiments, a storage device includes a non-volatile memory including a plurality of sub-blocks that are independently erasable, and a processor configured to control a garbage collection operation on the plurality of sub-blocks. The plurality of sub-blocks includes a plurality of first sub-blocks that have a first block size and a plurality of second sub-blocks that have a second block size. The second block size is different from the first block size. The processor is further configured to select a victim sub-block with a lowest ratio of a valid page count to an invalid page count from among the plurality of sub-blocks, and copy a valid page of the victim sub-block to a target sub-block from among the plurality of sub-blocks.

FIG. 6