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(54) **HYBRID NON-VOLATILE MEMORY SYSTEM**

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(57) **ABSTRACT**

The present invention presents a hybrid non-volatile system that uses non-volatile memories based on two or more different non-volatile memory technologies in order to exploit the relative advantages of each these technology with respect to the others. In an exemplary embodiment, the memory system includes a controller and a flash memory, where the controller has a non-volatile RAM based on an alternate technology such as FeRAM. The flash memory is used for the storage of user data and the non-volatile RAM in the controller is used for system control data used by the control to manage the storage of host data in the flash memory. The use of an alternate non-volatile memory technology in the controller allows for a non-volatile copy of the most recent control data to be accessed more quickly as it can be updated on a bit by bit basis. In another exemplary embodiment, the alternate non-volatile memory is used as a cache where data can safely be staged prior to its being written to the to the memory or read back to the host.

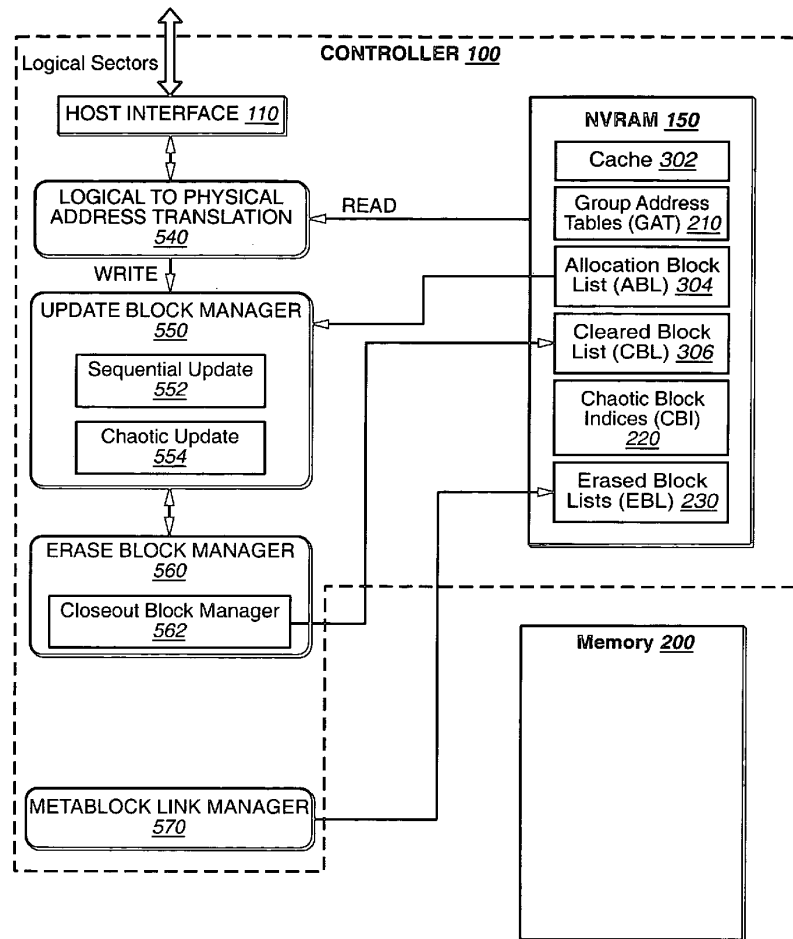
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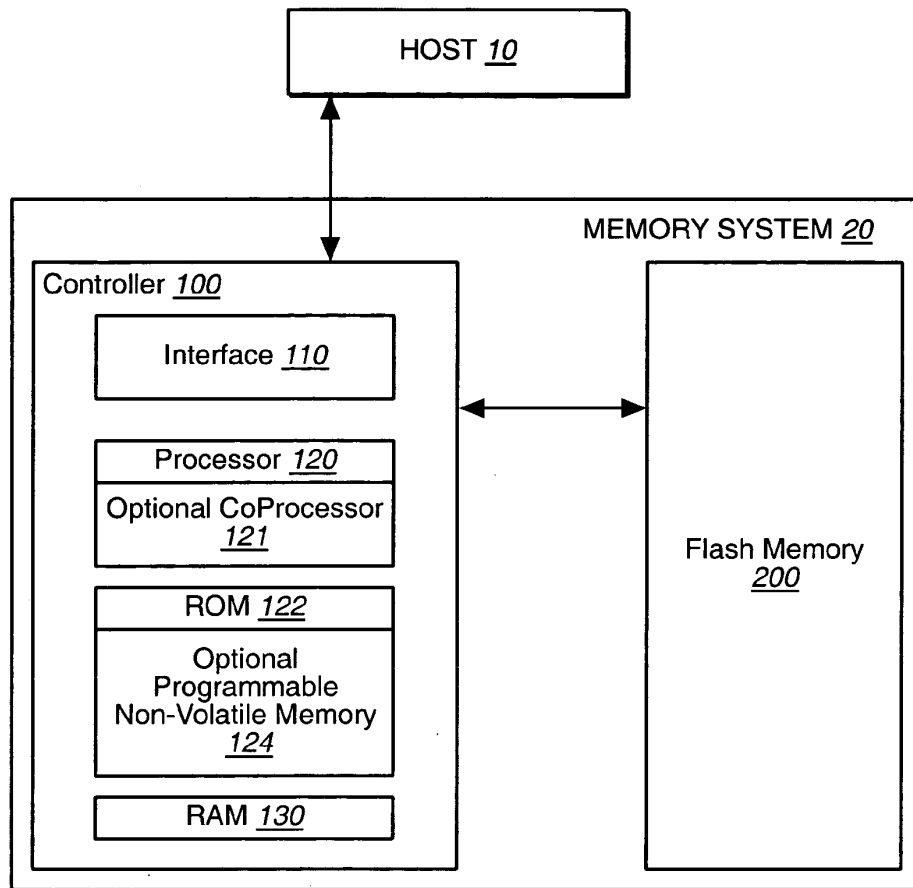
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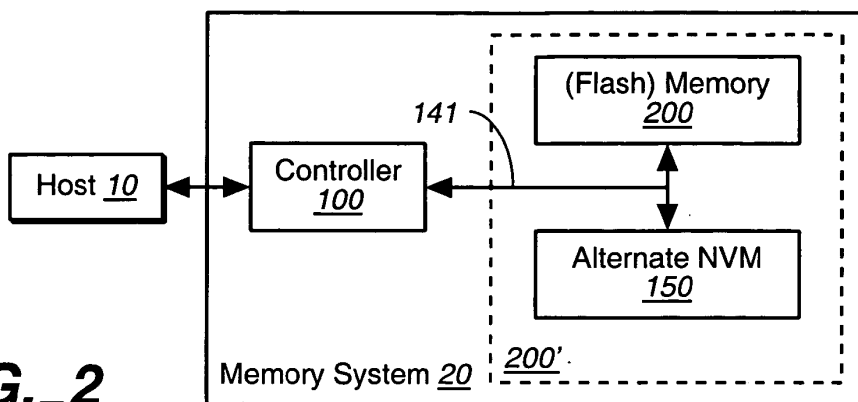
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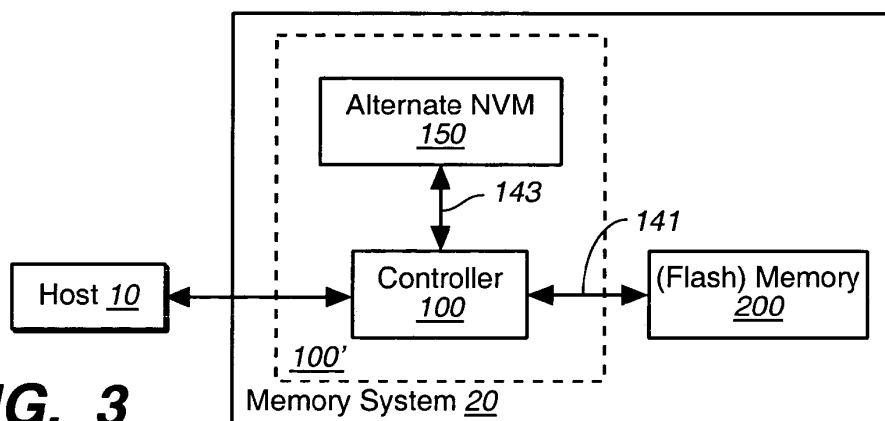




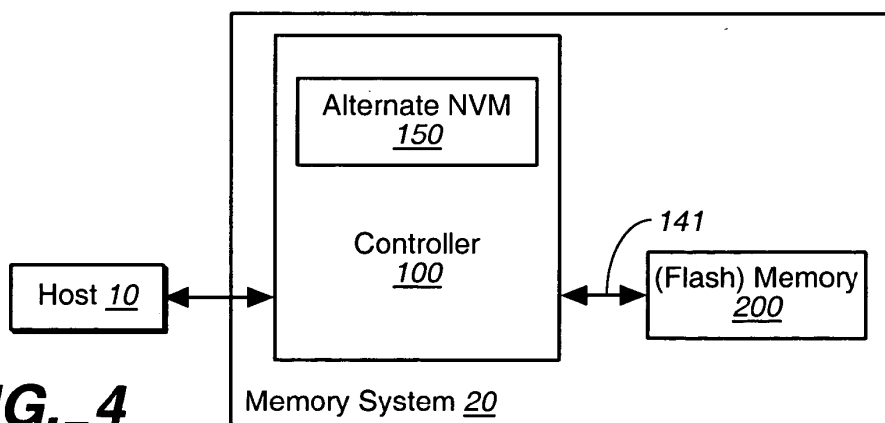
**FIG. 1**



**FIG. 2**

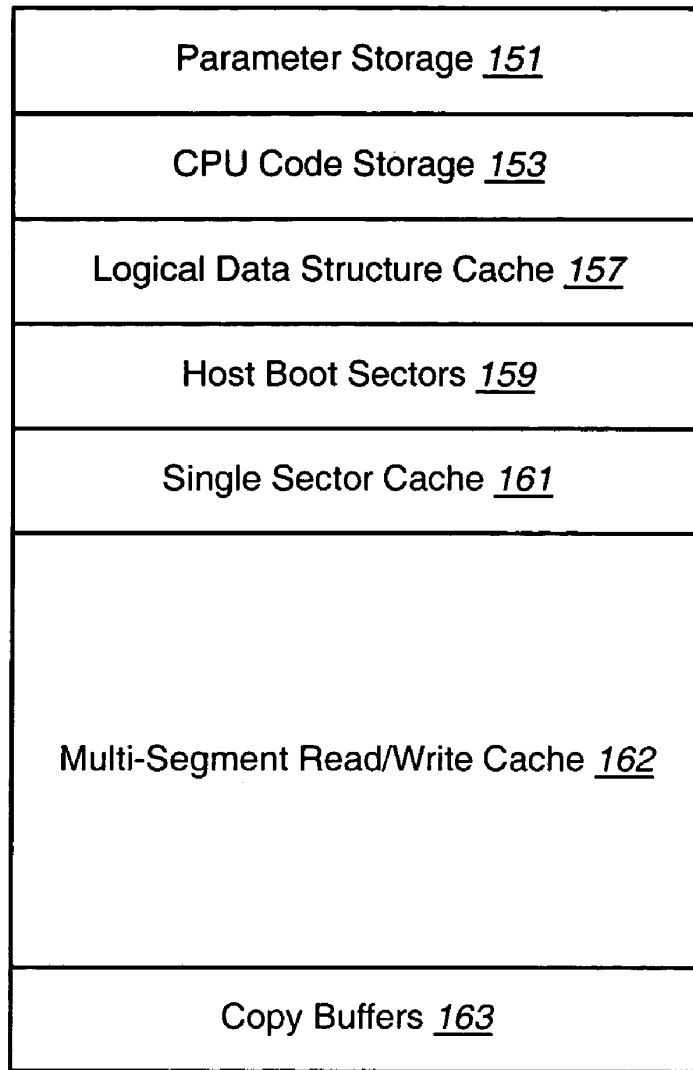


**FIG. 3**



**FIG. 4**

150 →



**FIG. 5**

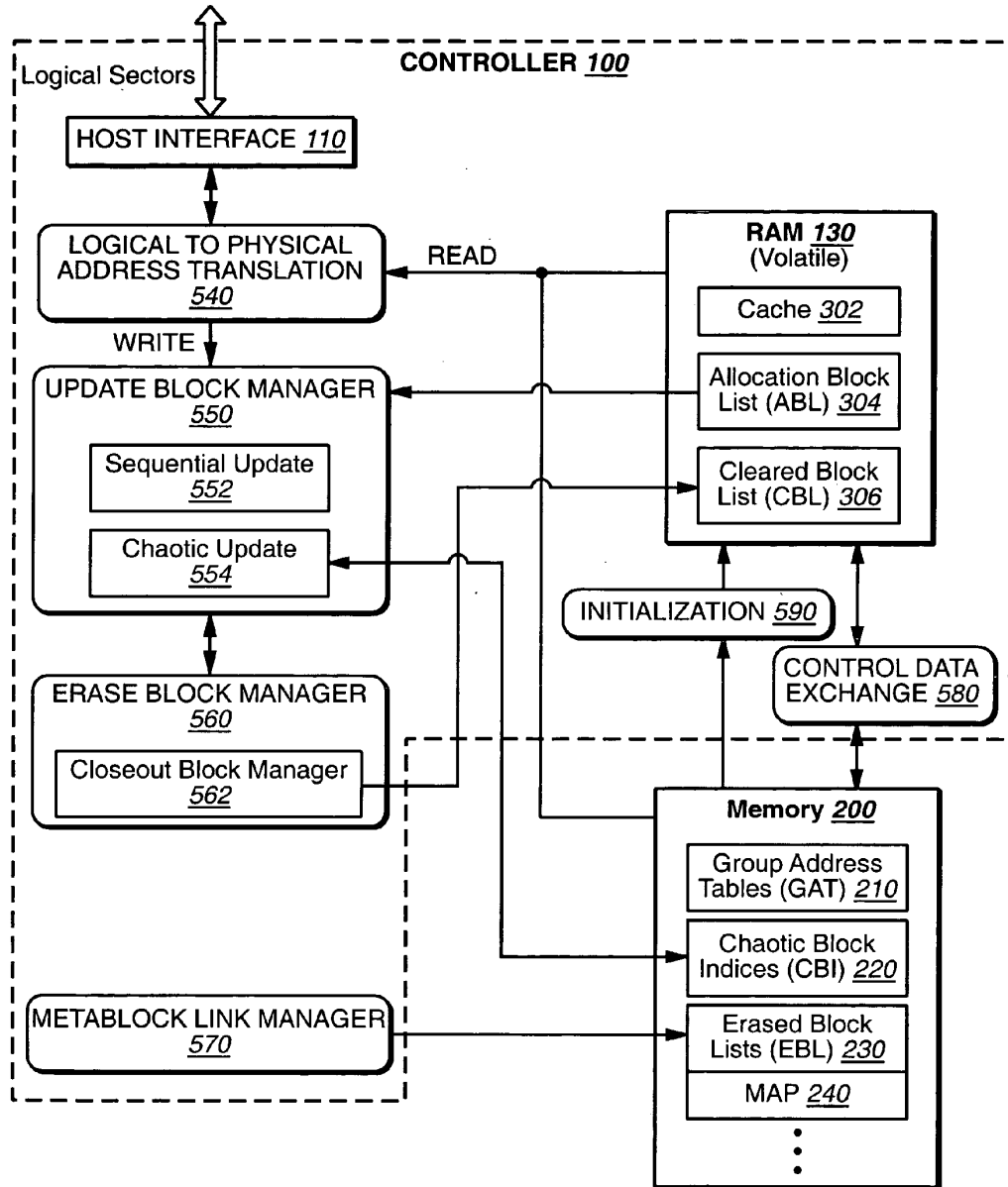


FIG. 6

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