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(54) **ERROR CORRECTION CODE SYSTEM
WITH AUGMENTED DETECTION
FEATURES**

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(57) **ABSTRACT**

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Various embodiments include an error correction code (ECC) system that provides protection against various errors in addition to data bit errors. In general, ECC codes protect against data bit errors, where one or more data bits in a data word contain the wrong value. The ECC code is based on the original data bits, such that a data bit error results in a data word that is inconsistent with the ECC code generated for and stored with the data word. The present embodiments generate ECC codes based on address information and/or sequencing information in addition to the data bits in the data word. As a result, the present embodiments detect bit errors in this address information and/or sequencing information. Such errors include write address decoding errors, read address decoding errors, write enable errors, and stale data errors.

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