NEW CLASS OF CODES TO CORRECT AND DETECT UNIDIRECTIONAL AND BI-DIRECTIONAL ERROR

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Unidirectional byte errors are known to be predominant in semiconductor computer memories and VLSI circuits. But bi-directional byte errors may also occur. Therefore codes, which correct and detect both unidirectional and bi-directional byte errors are important for error control in these byte organized memories. Here we construct a new class of codes called the Dual Purpose Maximum Rank codes (DPMRD codes). The DPMRD codes are constructed using two MRD codes and a specified number of binary all unidirectional error detecting codes. This new class of codes is not a RD code or a binary code. Further these codes are independent of the minimum distance, which is a new feature of this new class of codes.