Longest ring and path embedding in faulty hypercube

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ABSTRACT

In this paper, we show that the adjacency fault tolerance for property 2H of hypercube. We also show that the adjacency fault tolerance for Hamiltonian laceability of hypercube. Applying these results, we can construct a fault-free cycle with length at least 2n-2|Fv|+4 in Qn-Fv where Fv is the faulty vertices set contains at least two black vertices and two white vertices with |Fv|.n. We also construct a fault-free path of length at least 2n-2|Fv|+3 between two different color vertices, and construct the fault-free path with of length at least 2n-2|F_v|+2 between two same color vertices, |Fv| n-1.

Keywords : n-dimensional hypercube, longest cycle, longest path.

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