Conditional Fault-Tolerance of Hamiltonain Cycles for Crossed Cubes

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ABSTRACT

The crossed cube, denoted as CQn, which is a variation of the hypercube, possesses some properties superior to the hypercube. In this paper, we have proven that the graph CQn ? Fv ? Fe is Hamiltonian where the degree of every fault-free vertex is at least 2 for Fv ? V(CQn), Fe ? E(CQn), |Fv| + |Fe| ? 2n ? 6 and n ? 3. In addition, we also have proven that there exists a fault-free cycle of CQn − Fe − Fv with length at least 2n − |Fv| − 1 for |Fe| + |Fv| ? 2n − 6 and n ? 3.

Keywords : conditional fault、crossed cube、Hamiltonian cycle、faulty nodes、faulty edges、hypercube、interconnection network

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