The study of adjacent vertex-fault-tolerance for two spanning disjoint paths of hypercube

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ABSTRACT

We investigate the adjacent vertex fault-tolerance for two spanning disjoint path of hypercube in this thesis. We propose two results as follows. Let Fa be the set of | Fa | pairs of adjacently faulty vertices and Fe be the set of faulty edges of Qn. Let s1, s2, t1, t2 be four distinct fault-free vertices of Qn = (Vb ∪ Vw, E) for s1, t1 ? Vb and s2, t2 ? Vw. There exist two spanning disjoint paths P(s1, t1) and P(s2, t2) of Qn?Fa?Fe with |Fa| ? n ? 4 and |Fa| + |Fe| ? n ? 3. Let Fv ? Vb be a set of two faulty vertices of Qn. Let s1, s2, t1, t2 ? Vw be four distinct fault-free vertices of Qn. There exist two spanning disjoint paths P(s1, t1) and P(s2, t2) of Qn ?Fa ?Fv with |Fa| ? n ? 4.

Keywords : hypercube、adjacently faulty vertices、fault-tolerance、two spanning disjoint paths

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