FAULT-TOLERANT ADAPTIVE ROUTING IN DRAGONFLY NETWORKS

ABSTRACT

- Dragonfly networks have been widely used in the current high-performance computers or high-end servers. Fault-tolerant routing in dragonfly networks is essential. The rich interconnects provide good fault-tolerance ability for the network.

- A new deadlock-free adaptive fault-tolerant routing algorithm based on a new two-layer safety information model, is proposed by mapping routers in a group, and groups of the dragonfly network into two separate hypercubes.

- The new fault-tolerant routing algorithm tolerates static and dynamic faults. Our method can determine whether a packet can reach the destination at the source by using the new safety information model, which avoids dead-ends and aimless misrouting.

EXISTING SYSTEM

- There exists enough room to improve the effectiveness of the routing algorithm .It is quite easy for the network with increasing size to contain a couple of failures. The increasing scale of a network for a data center or a high-performance computer makes reliability a big problem. That is, how to tolerate faults in such a big network. We still have no work on fault-tolerant routing in dragonfly networks. It is necessary to propose an efficient fault-tolerant routing algorithm in dragonfly networks. The proposed deadlock-free adaptive fault-tolerant routing algorithm for dragonfly net-works tolerates dynamic link and router failures.

DISADVANTAGES

- It is quite easy for the network with increasing size to contain a couple of failures.

- The increasing scale of a network for a data center or a high-performance computer makes reliability a big problem.

PROPOSED SYSTEM

- We present a fault-tolerant routing algorithm for dragonfly networks. The faulty dragonfly network is mapped to two hypercubes (one for router groups, and one for the routers in the group that contains the source or destination), according to which a new safety model is proposed.

- The new safety model is different from the one called local safety in because of the new fault model. The fault-tolerant routing algorithm is quite different from the one in and the one in .

- The work in presented fault-tolerant routing for the crossbar-based fully connected on-chip networks, which is quite different from dragonfly networks.

ADVANTAGES

- Our method requires two indistinguishable buffers for each input port, which can provide better performance compared to designs with two different VCs.

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HARDWARE REQUIREMENTS

- System   : PentiumIV 2.4 GHz.

- Hard Disk   : 40 GB.

- Floppy Drive   : 1.44 Mb.

- Monitor   : 15 VGA Colour.

- Mouse   : Logitech.

- Ram   : 512 Mb.

SOFTWARE REQUIREMENTS

- Operating system : windows XP/7

- Coding Language : ASP.net,C#/java

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CONCLUSION

- A new deadlock-free adaptive fault-tolerant routing algorithm in dragonfly networks based on a new two-layer safety information model, is proposed by mapping routers in a group, and groups of the dragonfly network into two separate hypercubes. The new fault-tolerant routing algorithm does not require any virtual channels, just two indistinguishable buffers at each input port. The new method tolerates static and dynamic faults. Our method determines whether a packet can reach the destination at the source by using the new safety information model.