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Hot-spot traffic pattern on hierarchical 3D mesh network (Conference Paper)

Rahman, M.M.H.^a [✉](#), Akhand, M.A.H.^b [✉](#), Miura, Y.^c [✉](#), Inoguchi, Y.^d [✉](#)

^aDept. of Computer Science, KICT, IIUM, Kuala Lumpur, Malaysia

^bDept. of Computer Science and Engineering, KUET, Khulna, Bangladesh

^cShonan Institute of Technology, Fujisawa, Kanagawa, Japan

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Abstract

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A Hierarchical 3D-Mesh (H3DM) Network is a 2D-mesh network of multiple basic modules (BMs), in which the basic modules are 3D-torus networks that are hierarchically interconnected for higher-level networks. In this paper, we evaluate the dynamic communication performance of a H3DM network under hot-spot traffic pattern using a deadlock-free dimension order routing algorithm with minimum number of virtual channels. We have also evaluated the dynamic communication performance of the mesh and torus networks. It is shown that under most imbalance hot-spot traffic pattern H3DM network yields high throughput and low average transfer time than that of mesh and torus networks, providing better dynamic communication performance compared to those networks. © 2014 IEEE.

Author keywords

Deadlock-free routing algorithm Dynamic communication performance H3DM network Hot-spot traffic patterns
Interconnection network

Indexed keywords

Engineering controlled terms: Interconnection networks (circuit switching) Network routing Routing algorithms
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Hierarchical tori connected mesh network

Rahman, M.M.H. , Shah, A. , Fukushi, M.