Interconnection Networks For Multiprocessors And Multicomputers: Theory And Practice

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Multiprocessors and Multicomputers. 6.1 INTRODUCTION. As the demand for more computing power at a lower price continues, computer firms are building parallel computers more frequently. However, in practice, two- or three-dimensional networks are preferred because they provide better scalability, modularity, lower latency, and greater affinity for VLSI implementation than do high-dimensional networks. Examples of multicomputers that use low-dimensional networks are nCUBE/2 [NCU 90], Caltech Mosaic [ATH 88], Ametek 2010 [SEI 88], and MIT J-machine [DAL 89a, DAL 89b]. The interconnection network allows the multi-multiprocessor to be scalable (similar to multicomputers). Figure 6.19 General structure of multi-multiprocessors. Chapter 8-2 : Multicomputers Multiprocessors vs multicomputers Multiprocessors vs multicomputers Interconnection topologies Interconnection topologies. Published by Edgar Pitts Modified over 3 years ago. Embed. Presentation on theme: "Chapter 8-2 : Multicomputers Multiprocessors vs multicomputers Multiprocessors vs multicomputers Interconnection topologies Interconnection topologies." Embed Presentation transcript and COWS (Clusters of Workstations) The secret of high performance is the interconnection network The secret of high performance is the interconnection network 2. 3 3 Multiprocessor vs Multicomputer Figure 8-29. Comparison of three kinds of multiple CPU systems. Varma, A., and C. S. Raghavendra, Interconnection Networks for Multiprocessors and Multicomputers: Theory and Practice, IEEE Computer Society Press, 1994. Zomaya, A. Y. (ed.), Parallel and Distributed Computing Handbook, McGraw-Hill, 1996. Other extreme, the DMMP class is known as (distributed-memory) multicomputers. Finally, the DMSV class, which is becoming popular in view of combining the implementation ease of distributed memory with the programming ease of the shared-variable scheme, is sometimes called distributed shared memory. When all processors in a MIMD-type machine execute the same program, the result is sometimes referred to as single-program multiple-data [SPMD (spim-dee)].