Processor Allocation in K-Ary N-Cube Multiprocessors

Composed of various topologies, the k-ary n-cube system is desirable for accepting and executing topologically different tasks. In this paper, we propose a new allocation strategy to utilize the large amount of processor resources in the k-ary n-cubes. Our strategy is an extension of the TC strategy on hypercubes and is able to recognize all subcubes with different topologies. Simulation results show that with such full subcube recognition ability and no internal fragmentation, our strategy depicts constantly better performance than the other strategies, such as the Free-list strategy on k- ary n-cubes and the Sniffing strategy.