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CSC 310

Briefly explain the following interconnection networks:

TheCrossbar Network

Cube intersection network

Fat tree connection

Crossbar networks

It allow any processor in the system to connect to any other processor or memory unit so that many processors can communicate simultaneously without contention. A new connection can be established at any time as long as the requested input and output ports are free.

Cube Interconnection Network

It is a 3 dimensional interconnection network. When the node addresses are considered as the corners of an n- dimensional cube, the network connects each node to its n neighbors. In an n-cube, individual nodes are uniquely identified by n-bit addresses ranging from 0 to N-1.

Fat Tree Connection

The fat tree network is a universal network for provably efficient communication.

In a tree data structure, every branch has the same thickness, regardless of their place in the hierarchy—they are all "skinny" (skinny in this context means low-bandwidth). In a fat tree, branches nearer the top of the hierarchy are "fatter" (thicker) than branches further down the hierarchy. In a telecommunications network, the branches are data links, the varied thickness (bandwidth) of the data links allows for more efficient and technology-specific use.