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 ASSIGNMENT

1. The crossbar network allows 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. Crossbar networks are used in the design of high performance small scale multiprocessors. In the design of routers for direct networks, and as basic components in the design of large scale indirect networks.
2. The cube interconnection network is a 3 dimensional interconnection network its static as well.
3. The fat tree network is a universal network for provably efficient communication. It was invented by [Charles E. Leiserson](https://en.wikipedia.org/wiki/Charles_E._Leiserson) of the [Massachusetts Institute of Technology](https://en.wikipedia.org/wiki/Massachusetts_Institute_of_Technology) in 1985. In a [tree](https://en.wikipedia.org/wiki/Tree_%28data_structure%29) [data structure](https://en.wikipedia.org/wiki/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](https://en.wikipedia.org/wiki/Bandwidth_%28computing%29)). In a fat tree, branches nearer the top of the hierarchy are fatter (thicker) than branches further down the hierarchy. In a [telecommunications network](https://en.wikipedia.org/wiki/Telecommunications_network), the branches are [data links](https://en.wikipedia.org/wiki/Data_link); the varied thickness (bandwidth) of the data links allows for more efficient and technology-specific use. Super computers that use a fat tree network include the two fastest i.e. Summit and Sierra.