Consider the K-arry n-cube network is the most significant network structure in parallel computer architecture. Therefore the generic structure of K-arry n-cube used to design the various networks with static network topology of different parameters, and its makes different types hypercube networks (N=2^n ) from static networks known as embedded hypercube scalable inter-PE connection network suitable for parallel computing systems. Show how to design the good interconnection network in parallel Architecture for less density as well as diameter to route the data to different path. Also it has been proved with the computational results of entire system that the embedded hypercube interconnection networks built is highly scale up in terms of communication. A complete design analysis and comparison of network with various other networks is given using different network parameters, and statistical analysis comparative optimal of torus architecture rather than mesh architecture.

**Index Terms**

Computer Science, Networks

**Keywords**

Topology, Data routing path, Embedded network, Hypercube network, Network parameters and Scalability, Network Metrics
Statistics.