NoC Communication Backbone – Demonstration

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OPP design methodology introduces the concept of reusable, customizable, parameterizable and concurrency compliant components based design to enhance productivity. If these components can be represented in system modeling phase then one can analyze the performance of the system before the development phase. We propose include the performance and QoS parameters such as power consumption, cost (in terms of silicon area), latency of operation, throughput, resource usage, and network load. We propose that we should be able to extract the performance and QoS parameters from HW/SW prototyping and plus these parameters into MLDesigner – A system level modeling environment. This will allow us to analyze the performance of out system and application.

We have demonstrated this concept by implementing a 4×4 mesh based NOC architecture. This NOC implementation is a component based sub-system, which features customizable and concurrency compliant components. A major advantage of having IP libraries of a customizable NOC is the ability to save design time. The system architect can have a communication backbone ready for deployment without the need to redesign the underlying bus based architecture, which changes each time we change any component of the system. This NOC architecture is designed as scalable and parametriziable architecture.