



OCP Adoption

Tampere University of Technology

A solid methodology is required for designing billion transistor SoCs. Communication is a major challenge in systems design, therefore, an efficient communication-centric design methodology must be utilized. Separation of communication and computation makes architecture exploration and design reuse possible. A common interface, such as OCP, is necessary for such separation. Consequently, third-party IP can be easily integrated into self-developed systems.

The Institute of Digital and Computer Systems at Tampere University of Technology (in Finland) has been active in Network-on-Chip (NoC) and design methodology development for a number of years. The institution has introduced NoC architectures utilizing the OCP interface. Having many NoC architectures with a common interface enables the development of general-purpose NoC benchmarks, since the same benchmark may be easily applied to different NoCs. Benchmarks are required to form reliable estimates on NoC performance in various applications and to allow fair comparisons. Multiple benchmarks are necessary, as it is obvious that no single solution fits every application.

To support high-level system design, the developed design tools are not restricted to a single interconnection architecture, but enable automatic exploration of both communication and computation based on the common interface. For the same reasons, a highly scalable and parameterizable NoC, that allows different interconnection topologies and supports many levels of quality-of-service, is required. Such a solution simplifies and improves the optimization procedure. To this end, the institute has proposed a flexible NoC called HIBI (Heterogeneous IP Block Interconnection), which is used as a backbone for the automated design tools.

For more information about Tampere University of Technology, visit www.tkt.cs.tut.fi/research.com.

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