Abstract

The majority of recent embedded systems are based on MPSOCs (Multi Processors System On Chip) architectures. This is explained by the possibilities that offers this kind of architectures, as it ameliorates performances by duplicating computing units on the same chip. Besides, this tendency is boosted by technological advances allowing a very large integration scale which is
necessary to MPSOC fabrication. As a consequence, the challenge for MPSOCs has changed: Now, the calculation capacity and the number of processors on the same chip are more and more increasing and become often higher than requests. The priority has became then to focus on communication and synchronization between theses processors in order to ensure better performances of the whole system. In this survey we propose to make a detailed study about different architectural aspects of existing MPSOCs: First of all, we will deal with the topologies and the interconnections inside multi processor systems, with comparisons between PtoP (Point To Point), buses and NOCs (Networks On Chip) based communications. Then we will talk about GALS (Globally Asynchronous Locally Synchronous Systems). Finally, we will end with introducing memory architectures of MPSOCs.

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**Index Terms**

Computer Science Interconnection Networks
Key words
- MPSOC
- Interconnections
- Point-to-point
- Bus
- NOC
- GALS
- Memories