From the Processing Unit to the Multi-Processor System on Chip

A Multi-Processor System on Chip (MPSoC) is a System on Chip (SoC) which includes multiple Processing Units (PU). As such, it is a Multi-Core System-on-Chip. All PUs are linked to each other by a Network on Chip (NoC). These technologies meet the performance needs of multimedia applications, telecommunication architectures or network security.

1. INTRODUCTION

2. PROJECTS

2.1. Processing Unit

2.1.1. RISC-V PU

2.1.2. OpenRISC PU

2.1.3. MSP430 PU

2.2. Peripheral Devices

2.2.1. Debugger on Chip

2.2.2. Direct Access Memory

2.2.3. Master-Slave Interface

2.2.4. Network on Chip

2.2.5. Message Passing Interface

2.2.6. General Purpose Input Output

2.2.7. Multi-Port RAM for Instruction & Data

3. WORKFLOW

3.01. Modeling System Level Hardware

3.02. Simulating System Level Hardware

3.03. Verifying System Level Hardware

3.04. Describing Register Transfer Level Hardware

3.05. Simulating Register Transfer Level Hardware

3.06. Synthesizing Register Transfer Level Hardware

3.07. Optimizing Register Transfer Level Hardware

3.08. Verifying Register Transfer Level Hardware

3.09. Planning Switch Level Hardware

3.10. Placing Switch Level Hardware

3.11. Timing Switch Level Hardware

3.12. Routing Switch Level Hardware

3.13. Simulating Switch Level Hardware

3.14. Verifying Switch Level Hardware LVS

3.15. Checking Switch Level Hardware DRC

3.16. Printing Switch Level Hardware GDS

4. CONCLUSION