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Development Phase Report - JoSDC’24

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| Team Name | | |
|  | | |
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Jordan National Semiconductor Design Competition (JOSDC’2024)

Project Title

By

1st Name

Department

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2nd Name

Department

Email

3rd Name

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Email

4th Name

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5th Name

Department

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Amman, Jordan

11 / 2024

Acknowledgments

Recognition or favorable notice for people.

Abstract

Describe your project briefly in a few paragraphs. The abstract should not exceed one page.

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# Executive Summary

An executive summary is a concise section demonstrating the report, clearly summarizing the project and a brief overview of the design, and summarizing the most important results such as performance improvements or technical achievements.

The executive summary should not exceed 5 pages.

# Introduction

Describe the overall components and design methodology.

## Objectives

State what the project and the report aim to achieve.

## Design Achieved

Highlight the key outcomes of the design phase, focusing on the final solution or system you've built.

# MIPS Reference Architecture

This section provides an overview of the MIPS architecture, focusing on the essential components relevant to your project. It includes the instruction set, memory model, and machine code, which are crucial for understanding how MIPS supports your design.

## Instruction Set

* Explain what the instruction set is (a group of instructions that the processor can execute).
* Explain the basic instruction formats (R-format, I-format, J-format) and their components (opcode, source registers, destination registers, etc.).

## Memory Model

* Explain how memory is organized and managed in the MIPS architecture.

## Machine Code

* Explain MIPS machine code, showing how high-level instructions are translated into binary code that the processor executes.

# Design

## Hardware Design and Implementation

* Describe the hardware design and component used.
* Explain the physical setup of the hardware.
* Discuss any challenges faced during hardware implementation.
* Include photographs, diagrams, or schematics of the hardware setup.
* **This section should include:**
  + **Single Cycle Processor and Pipelined Processor (explaining the datapath and the control unit for both).**

## Coding and Software Development

* Describe the coding and software development aspects of your project.
* Explain the programming languages and tools used.
* Provide code flow charts or algorithms related to your project.
* Discuss the coding challenges and solutions.

# Evaluation & Results

• Present the results of testing and validation procedures for both simulation and hardware.

• Include data, graphs, and tables to support your findings.

• Discuss the performance and functionality of the integrated system.

• Use a table to summarize that requirements were met.

• **This section should include:**

* **Benchmarks (including single cycle processor, pipelined processor, and the final design)**
* **Coverage**
* **Performance (Speedups)**
* **Summary: rubrics tables**

## Experiment/Simulation Results Discussion:

* + Use
    - Tables
    - Graphs
    - Waveform
    - figures

## Prototype Setup

* + Hardware
  + Software

## Validation of requirements

* + Discuss and analyze whether the requirements are met

# Conclusion

* Summarize the key findings and their implications.
* Assess whether the project's objectives were achieved.
* Provide recommendations for future work.

References

Follow a format consistent with IEEE guidelines and utilize conference and journal papers for your reference list

APPENDICES

These are detailed documentation of points mentioned in the report (e.g. technical data, questionnaires, chart …. etc.) which are considered supplementary information but too long or not quite relevant enough to include in the main body of the report.

Appendices may be labeled with letters as Appendix A, Appendix B, and so on.

Example,

Appendix A: VERILOG CODE

Appendix B: MACHINE CODE GENERATORS

Appendix C: COVERAGE TOOLS

Appendix D: VGA