

CpE 213: Project 1  
**Create Your Own WIMP51 Version**

**Goal:** To create, in Quartus II, and demonstrate your own WIMP51 version on the Altera DE2 FPGA board.

**Objectives:**

- To create a version of the WIMP51 processor in Quartus II using Block Diagram Files (BDF).
  - The variation must include new and/or modifications to the current instruction set. The original instruction set cannot be changed. Instructions must be added!
  - Creation of NOP instruction is not allowed.
  - The variation must be significant.
  - The basic architecture cannot be changed.
- To demonstrate the successful working of the modified WIMP51 using test programs
- To create a detailed report the must include:
  - Modified instruction set
  - Description of the modifications:
    - Logic description
    - Digital circuits of the modifications
    - Test programs

**Group Rules:** Work must be done in either groups of 2 students or a group of 1.

- Note: The amount of work done by a group of 2 students must be significantly more than the amount of work done by a group of 1 student.

**Deliverables & Deadlines:**

- Group notification via e-mail:
  - Mention if you are working alone or in a group
  - If you are working in a group, please send me the names in your group.
- Final plan of action:
  - Make sure to discuss your plan of action on a regular basis.
  - Design implementations must be significantly different from group-to-group
- Project report and demonstration:
  - Project demonstrations must be scheduled outside normal class hours. Please work with me to schedule a demonstration time. Saturdays are also possible!
  - Project report must be typed and submitted via e-mail.
  - Entire project folder: Please e-mail your entire project folder. I should be able to compile and download your program, on the Altera board and run test programs.

**Grading Policy:**

- Project Demonstration: 30%
- Project Creativity: 50%
- Project Report: 20%

Note: For the project submission to be valid the project must be demonstrated and a report must be submitted. Failure to do so will result in a reduced overall score for project 1.