Project Checkpoint 6 (+5 extra credit)

Interactive Game

Logistics

This is the last project checkpoint.

- Due: **Friday, December 16, 2022, at 2:00 PM** (Duke Time).
    - Late policy can be found on the course webpage/syllabus
- Collaboration: you should form a team of two or three students. Feel free to form new teams for this PC.
- If you plan to demonstrate your working project on the due date, you have to email Bokyung Kim (bk174@duke.edu) by December 14, 2022, at 11:59 pm to let her know who your team is.

Requirements

You are to implement one of the below interactive games using your processor and IO components (a VGA screen and a PS2 keyboard). One major component of your design has to run in software on the processor (feel free to create additional custom ISA instructions). You are only expected to implement the most basic level of the game, but do not let this limit your creativity and innovation. Note that using behavioral Verilog is allowed for this PC.

Game options:

- Snake (https://en.wikipedia.org/wiki/Snake_(video_game_genre))
- Tetris (https://en.wikipedia.org/wiki/Tetris)
- Pong (https://en.wikipedia.org/wiki/Pong)
- Flappy Bird (https://en.wikipedia.org/wiki/Flappy_Bird)
- Space Invaders (https://en.wikipedia.org/wiki/Space_Invaders)
- 1024 or 2048 (https://en.wikipedia.org/wiki/2048_(video_game))
- Sokoban (https://en.wikipedia.org/wiki/Sokoban)
- Gomoku (https://en.wikipedia.org/wiki/Gomoku)

Deliverables and Grading

Teams who decide to go for the extra credit should demonstrate the functionality of their project on Friday, December 16 at 2:00-5:00 (in Hudson 214). Extra credit will be awarded after assessing the functionality and design of the project based on the following criteria:

- Moving components on the screen using a PS2 keyboard: +1
- Showing a score on the screen that updates according to the game rules: +1
- Running a significant part of the game in software on CPU: +1
- Basic game rules are applied and functional: +2