GameBoy FPGA Emulator

TEAM MEMBERS
Kennneth Collins (kennethc)
Waalaa Alkhanaizi (walaa)
Team **KWala**

ABSTRACT

We are interested in building an emulator for GameBoy games in Verilog to run and play the games on an FPGA. We plan on writing verilog code to build the GameBoy processor and emulate its functionality on the FPGA.

GAMES

We are thinking of storing the ROM of the game at hand in a flash memory and connecting it to the FPGA via USB or serial port. If you want to load another game, you would load the flash memory with the ROM of the other game and run the emulator. If building a verilog for arbitrary games is too difficult, we could settle for building a verilog module that synthesizes a specific game. Alternately, we could use a bigger flash drive to store multiple game ROMs that have already been emulated in the code. We plan on using the monitor connected to the FPGA to show the graphics of the game.

CONTROLLER

Ideally, we would like to use a Classic USB NES controller for game input. If this is something that we fail to integrate into our implementation, the buttons and switches provided on the lab kit(s) will suffice.

PARTS
- 1 Classic USB NES Controller
  https://www.amazon.com/Classic-USB-NES-Controller-PC-Mac/dp/B002YVD3KM
- Flash drive (to store the game ROM)
- FPGA, and monitor (provided)