**Eskimo Farm**

Side Scrolling Shoot-em Up

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# Overview

# Hardware Design

## Resource Usage

\*Put stats from Quartus Compilation

\* Put Calculation of sprite roms and audio roms

## Graphics Processing

The graphics processor consists of three hardware modules: Graphics Controller, Sprite Controller, and VGA Controller. The three combine to form the graphics processor for Eskimo-Farm. Figure X shows a block diagram of how these modules are arranged.



### Graphics Controller

The Graphics controller is the top-level module where the interconnections between the Sprite Controller and VGA Controller are made. Connections are also made with the ROM blocks where the sprites are stored. This top-level module interacts with the Avalon MM Bus to send and receive data from the software. The hardware and software are synced during the VGA’s vertical sync period.

### Sprite Controller

The Sprite Controller decides whether a given sprite should be drawn depending on the VCOUNT and HCOUNT from the VGA Controller. It then returns the appropriate RGB for the given VCOUNT and HCOUNT.



## Audio Processing

# Software Design

## Overview

## Game Logic

\*Add FSM for gamelogic

## Drivers

### Graphics

### Audio

# 20/20 Hindsight (Lessons Learned)

## Attempted Approaches

# References

[1] Altera SoCKiT Manual

[2] Data Sheet Memory

[3] Data Sheet Audio

[4] CUDoom Project

[5] NUNY Project

[6] Michigan System Verilog stylesheet + Cheatsheet

[7] Spriters-Resource

[8] bxfr

[9] Space-Invaders github

[10] xboxdrv

[11] wav2hex program github